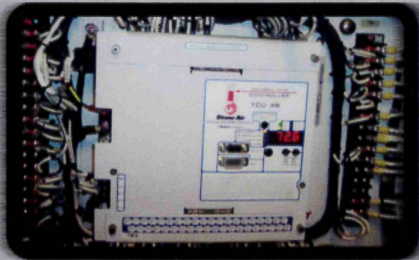
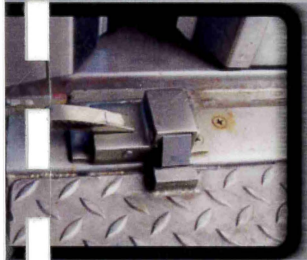
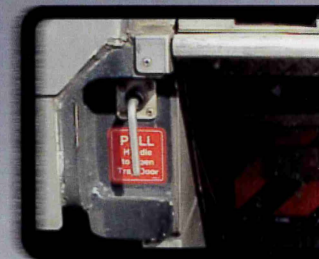
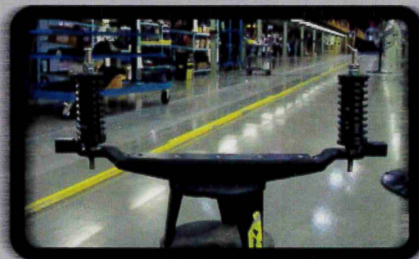
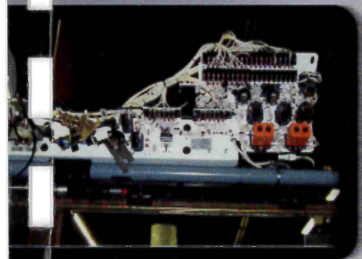


PROPOSAL



OVERHAUL OF BI-LEVEL COACHES



submitted to:
Massachusetts Bay Transportation Authority

submitted by:
STV/PB - a joint venture

November 2006



321 Summer Street, 7th Floor
Boston, Massachusetts 02110
(617) 482-7298 fax: (617) 482-1837

November 17, 2006

Mr. William F. LeLacheur
Senior Technical Project Manager
Rail Vehicle Engineering
Massachusetts Bay Transportation Authority
80 Broadway
Everett, Massachusetts 02149

**Reference: Engineering Services for the Overhaul of Bi-Level Coaches
 MBTA Contract No. V61PS02**

Dear Mr. LeLacheur:

STV/PB, a Joint Venture of STV Inc. and Parsons Brinckerhoff Quade and Douglas, Inc. is pleased to submit this Proposal to provide engineering, inspection and testing services for the overhaul of the seventy-five (75) bi-level coaches.

Over the years, we have found that a number of key factors are critical to the success of any overhaul program. These key factors include the firms' background and project experience; proven project leadership; strong field management; a seasoned field staff well-versed in testing and QA procedures; and accurate record-keeping systems and procedures. As illustrated throughout our proposal, the STV/PB team exceeds each of these criteria. Furthermore, STV/PB has demonstrated the ability to provide these critical elements to MBTA on commuter rail rolling stock procurements and overhauls over the last two decades.

The STV/PB Team Brings to the MBTA

- The combined resources of two of the nation's strongest transportation consulting firms.
- Successful record on many MBTA commuter rail rolling stock engineering services over the past two decades.
- Local presence including a staff of six commuter rail vehicle engineers in Boston.
- Continuity of experience and lessons learned through successes of the MBTA Pullman Overhaul and MBTA Greenbush Bi-Level Procurement.
- An integrated team from Greenbush Coach Procurement Project still in place to facilitate a cohesive work product in a timely fashion.
- A Project Manager and engineers who possess a working knowledge of MBTA operations, practices, and guidelines so that we can anticipate and respond effectively to MBTA's needs.
- The ability to build on the current locomotive overhaul programs for cab control upgrades to the twenty-five cab cars in this overhaul program.
- Value added from lessons learned and experience gained by team members on the successful Greenbush Procurement.
- Capability to develop appropriate coach overhaul specifications, as we have previously done on the MBTA Pullman Overhaul.

The STV/PB Team

The STV/PB joint venture was established to meet MBTA's needs. It allows us to take advantage of the management systems and depth of resources of both firms to accomplish this important project for MBTA. The two firms have already created an integrated project team, blending the best of both companies into a single responsive team for the purpose of delivering to the MBTA properly overhauled cars on time, and within budget.

Joining STV/PB in this effort is VP Engineering, Inc. VPE has worked successfully for the joint venture on previous MBTA commuter car programs and on its own has developed a good working relationship with MBTA.

Proven Project Leadership

Lee Olson has successfully managed MBTA car procurements for over 10 years. These include procurement of 67 Kawasaki bi-level cars and the overhaul of 57 Pullman cars. He has successfully managed both locomotive and car overhauls for other public authorities.

Strong Field Management

Our field management team reflects STV/PB's philosophy and experience on bi-level procurements and car overhauls. Will Smith, our designated QA Manager, was the Quality Manager for the original procurement of these cars. Our philosophy will continue to be to make as many decisions as possible at the local level where the work is being performed. Mr. Smith will be responsible for supervising our field personnel, conducting quality audits, first article inspections (FAIs), in-process inspections, and pre-shipment inspections of both components and completed cars.

Personnel Commitment

STV/PB has performed an analysis of our current commitments, both to MBTA and to others with the staff loading requirements of this new contract. We have concluded that this new work fits very well with our current commitments, thus enabling all personnel assigned to this contract to be available and committed to this assignment. Because of the depth of resources available, we have also identified fully-qualified backup personnel for all key management positions.

Salary Caps

This letter also requests waivers of the salary cap for key personnel that are identified as critical for the successful completion of this project. The waiver request is based on the highly specialized technical skills needed to successfully manage and accomplish this assignment.

These key personnel have working knowledge and practical experience in the application of the new FRA Requirements and APTA PRESS Recommendations. The technical aspects of the project will include all phases of vehicle condition assessment, maintenance recommendations, specification development and procurement support, design review and inspection services. For this diverse and challenging endeavor, we have identified senior professionals to fulfill these project critical staffing needs. These identified key personnel, their roles, and their current direct labor rates are as follows:

$$\begin{array}{r}
 61 \\
 71 \\
 67 \\
 72 \\
 60 \\
 62 \\
 \hline
 613933 \\
 \hline
 65
 \end{array}$$

• Lee Olson	Project Manager	\$61.34
• Will Smith	Quality Manager	\$71.20
• Jack Barnas	Engineering Manager	\$67.41
• Ian Pirie	Software/Integration Engineer	\$72.59
• Jim Gregory	Electrical Engineer	\$60.50
• John Gregory	Engineer-in-Residence	\$62.50

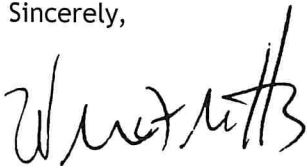
The current salaries of the cited employees are commensurate with their respective specialized technical skills and qualifications. They are also comparable to rates of other equal professionals in the marketplace.

In view of the exceptional added value these individuals collectively bring to this assignment, we request a waiver of the MBTA's salary cap and submit this request for your approval. It should also be noted that all of these key personnel have experience with both cars and locomotives. This creates added synergistic value to the MBTA for this important project regarding likely cab car control upgrades.

We have reviewed Article II - General Provisions, and Article III - Compensation and Payment, and agree to the terms outlined therein.

We thank you for the opportunity to submit this proposal to provide the engineering services required for the overhaul of the original 75 MBTA bi-level cars. We look forward to continuing our long and successful relationship with the MBTA, and to work with you to make this program another successful project for MBTA.

Sincerely,



William F. Matts, P.E.
Executive Vice President
STV Incorporated



Morris Levy, P.E.
Senior Vice President
Parsons Brinckerhoff Quade & Douglas, Inc.

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Relevant Experience

Introduction

The STV/PB Team combines two of the Nation's foremost firms in rolling stock engineering services and vehicle overhaul. STV/PB brings an unmatched knowledge and understanding of the MBTA's rail operations, vehicle procurement, and overhaul programs. Individually, each firm has tremendous experience providing specifications, design review, inspection, testing, and administrative services for these programs. STV Incorporated (STV) has served MBTA in the overhaul and procurement of locomotives for over 25 years, and Parsons Brinckerhoff Quade & Douglas, Inc. (PB) has led the agency's overhaul and procurement programs for both single- and bi-level passenger coaches since 1988.

Through our long-standing service to the Authority, STV/PB has established working relationships with MBTA staff, gained a clear understanding of MBTA's quality objectives, familiarity with MBTA vehicles of every type, and full knowledge of the MBTA's operating requirements.

Simply put, no other team provides the same level of experience with and understanding of the MBTA's commuter rail vehicle program as the STV/PB team. The following provides a brief summary of the benefits this team offers the MBTA.

STV and PB have over 25 years of experience with the MBTA's commuter rail vehicle procurement and overhaul program.

Expertise in MBTA Commuter Rail Vehicle Overhaul and Procurement Programs

As the prime firm for MBTA's locomotive overhaul program, STV has completed the assignment to put 25 F40PH-2C locomotives back into service in a state of complete repair. Through expert vehicle engineering and inspection staff, as well as an in-plant resident inspector, this project has been a critical element in meeting the agency's goal to reinstate the Greenbush line and meet increased ridership. STV has a long record of assisting the MBTA with its locomotive fleet, whether through procurement or overhaul. STV has also led a variety of services for MBTA's commuter and rapid transit fleet. Through these and other similar programs, STV has developed an in-depth knowledge of diesel-electric locomotives and passenger vehicles, as well as the benefits of new rail technology applications.

Likewise, PB has been at the forefront of MBTA's passenger vehicle overhaul and procurement programs. This includes the Pullman Coach Overhaul program, which involved inspection, design review, and acceptance testing for 57 standard commuter rail coaches on extensions to Worcester and on the Old Colony Line. Much like the current overhaul program, the delivery of



STV / PB brings experience in various MBTA vehicle types, enabling the team to address compatibility for any required cab control upgrades.

the coaches was planned to coincide with the opening of the (then) new Old Colony Line. All vehicles were delivered on time and under budget with no impact on existing vehicle operations. PB has also led coach procurement programs for MBTA, including over 107 bi-level coaches, providing design review and inspection staff at Kawasaki's plants in Japan and Pittsfield, MA and Yonkers, NY, as well as MBTA's Boston Engine Terminal.

Furthermore, for the additional 33 bi-level coaches for the Greenbush Line, STV/PB provided procurement services including writing the technical specification, bid support, design review and on site inspection staff. It is noteworthy that cars were built concurrently in Kobe Japan, where the advance coaches were built, and also at the same time at the Kawasaki plant in Lincoln, NE, where the production cars were built. STV/PB successfully supported the building of the advance coaches and the manufacture and shipment of cars simultaneously at both facilities.

Experience Working Together as a Team

STV and PB have worked together serving the MBTA and other properties on rolling stock engineering and inspections services for over 25 years. Through our ongoing vehicle procurement program with MBTA, STV/PB has established clear lines of communication and reporting structures for all design review and inspection services. The key personnel we are assigning to the proposed overhaul program have served in nearly identical roles on several other MBTA programs. Also, our team's subconsultant, VP Engineering, has worked with STV/PB in the past on other MBTA assignments providing similar services. Building on these existing relationships and past successful performance, the STV/PB team will transition into this project efficiently and without any learning curve.

STV/PB Commuter Rail Agencies

- MBTA
- Long Island Rail Road
- New Jersey Transit
- Northeast Illinois Regional Commuter Railroad Corp.
- Metro-North Railroad
- Caltrain
- Virginia Railway Express
- Maryland Rail Commuter
- Rhode Island DOT

Familiarity with MBTA Vehicles and Operations

Throughout past STV/PB assignments with MBTA, the team has performed every element of condition assessment, specification preparation, design review, inspection, final car acceptance testing, and warranty administration that will be required for the current assignment. As a result, we have developed a full familiarity with the MBTA's wide variety of coach and locomotive vehicles, and an in-depth understanding of the environment in which these vehicles must operate. This working knowledge is critical in scheduling the overhaul of each vehicle in a timely manner. Expedient design review, inspection, and testing of vehicles are essential when only a limited percentage of vehicles can be taken out of service at any given time.

Understanding of Carbuilder Operations

STV/PB's approach to the management and administration of the overhaul of rail vehicles is based on our experience with thousands of new and rehabilitated locomotives and passenger coaches with almost every component supplier and builder in the United States, Canada, Europe, South America, and Japan. Our skilled and knowledgeable professional staff have gained their experience on numerous similar projects ranging from condition assessment, engineering cost estimates, preparation of specifications, rail vehicle design reviews, qualification testing, FAls, assembly line inspection at the plant, vehicle acceptance, warranty, to managing overhaul programs for rail agencies. This corporate and personal experience as

well as the intimate knowledge of all the various vehicle builders and suppliers provides us the resources and the ability to deliver to the MBTA a high quality and a timely and fully conforming overhaul program.

Specific Project Experience

The STV/PB team offers unmatched qualifications for supporting rolling stock overhaul programs. This team has participated in virtually every major MBTA locomotive, coach procurement or overhaul initiated by the MBTA in recent times. We understand the many complex issues involved in the overhaul of rail vehicles, as well as the particular needs of the MBTA. We have worked successfully with the Authority's project managers on these procurements and overhauls from inception to completion. By building on the lessons learned, we can apply the benefits gained from this unique experience to this vehicle overhaul program.

STV/PB's rolling stock engineering and inspection experience also includes work for agencies around the world. With over 6,000 coaches and 500 locomotives successfully procured, STV/PB has provided engineering and inspection services to other commuter rail agencies such as Long Island Rail Road, New Jersey Transit, Northeast Illinois Regional Commuter Railroad Corp., Metro-North Railroad, Caltrain, Virginia Railway Express, Maryland Rail Commuter, Rhode Island Department of Transportation, and others. This experience provides the team with additional lessons learned and hands-on experience that will benefit MBTA's overhaul program.

Following are descriptions of similar rolling stock programs performed by STV/PB over the past five years.

MBTA Pullman Commuter Coach Overhaul

Contact: William F. LeLacheur, Sr. Technical Project Manager (617) 222-5318

PB was retained to provide design engineering and QA/QC services covering the midlife overhaul of MBTA's 57 Pullman Standard commuter rail coaches. These cars supplemented the existing fleet on the MBTA's extensions to Worcester and on the Old Colony lines. Modifications had to be incorporated to make the car fleet compatible, and compliant with the requirements of the Americans with Disabilities Act (ADA). The overhaul included conversion of the control coaches to blind trailer coaches, interior reconfiguration for ADA, structural repair, rehabilitation of all systems, wiring, and optional high capacity seating and power doors.

PB was responsible for overall program management, provided specification preparation and procurement engineering services for this project. These services included:

- Condition assessment of the existing cars.
- ADA evaluation to determine requirements and recommend design changes to make the cars ADA compliant.
- Review of fleet compatibility and maintenance issues and recommendations for design changes.
- Preparation of technical specification for the car overhaul.
- Structural damage assessment on wrecked cars.
- Preparation of engineer's cost estimate.
- Preparation of procurement specification in coordination with terms and conditions.



Overhaul of 57 Pullman coaches to supplement the Worcester and Old Colony Line fleets completed on time and under budget.

- Engineering design review.
- In-plant inspection.
- Testing supervision.
- Conditional acceptance.
- Warranty support.

Utah Transit Authority, Procurement and Overhaul of Comet I Commuter Cars

Contact: Todd Provost, Project Manager, 801-287-2541

PB was retained to provide engineering services to evaluate the condition of Comet I vehicles withdrawn from service in January 2006 by New Jersey Transit for possible purchase by UTA for use on the new commuter line between Salt Lake City and Pleasant View, due for startup in 2008. PB's services included:

- Review of 34 of these cars and preparation of report on their general condition.
- Recommendations for design changes to make the overhauled cars ADA accessible.
- Detailed evaluation of each car and each system to identify individual cars that deviated from the normal condition.
- Evaluation of proposals.
- Performance of design reviews.
- Participation in FAls of new equipment.
- QA oversight of the overhaul program.
- Witnessing all testing and commissioning activities.

MBTA Consultant Services for the Acquisition of New Bi-Level Coaches and Diesel-Electric Commuter Rail Locomotives

Contact: William F. LeLacheur, Sr. Technical Project Manager (617) 222-5318

STV/PB is currently providing engineering support services to the MBTA for the procurement of new rail vehicles to accommodate increased service on the Greenbush Line. The project included program management, preparation of technical specifications, pre-bid support, and bid evaluations related to the acquisition of 33 bi-level coaches (28 base and 5 option coaches). STV / PB has performed the following tasks:

- Preparation of contract drawings to support the technical specifications and the procurement process.
- Development of a comprehensive bid package for the procurement, including the preparation of technical specifications, contract documents, advertisement documents, and any other required support documents.
- Assistance in selecting the car manufacturer (Kawasaki)
- Monitoring adherence to production schedules and compliance with specifications including review of all items that the builder submits for approval (engineering designs, calculations, drawings, manufacturing procedures, test plans and procedures, assembly procedures, safety program, and production schedules).
- Witnessing qualification, acceptance testing of materials, subsystems and completed cars at the builder and subcontractors' plants.
- Inspection during production and delivery of the new bi-level coaches.



STV/PB holds the current contract for the procurement of new bi-level coaches to accommodate increased Greenbush Line service.

- Witnessing testing and participating in all FAIs for car structure, truck frames and bolsters, toilets, underframe, endframe, HVAC, powered door system, and brakes.
- Monitoring the construction and testing of the cars and, when the cars arrived in Boston, conducting a receiving inspection to document whether any damage has occurred during shipping.
- Warranty support on the bi-level procurement.

Fort Worth Transportation Authority Commuter Rail Project

Contact: Ken Frost, VP Transit, (817) 215-8720

PB assisted this new commuter rail authority as it continues a program to provide commuter rail service from Fort Worth to Dallas that started in the year 2000. PB managed the entire Phase II program to upgrade the freight right of way to a commuter rail line. PB was also responsible for the vehicle segments of this project. PB performed a comprehensive search, and located used equipment that provided an excellent value. Fort Worth subsequently purchased this equipment, utilizing PB's engineering and inspection assistance. PB prepared technical specifications that included contractual terms for the bi-level commuter car overhaul and the upgrade of the F59PH diesel-electric locomotives. The overhaul included removing toilets, and building new ADA compliant toilet facilities, and making other modifications to bring the cars into ADA compliance. PB also assisted the Authority in the procurement of two new bi-level cab cars and two F59PHI locomotives.

VRE, Gallery Car Procurement

Contact: Dennis Larson, Director Rail Equipment and Services, 703 838-5439

STV is the prime consultant on VRE's project to purchase and manufacture gallery style rail cars. The base order of the contract was for 11 cab gallery style rail cars. VRE has exercised their option for 50 additional gallery cars consisting of 10 additional cab cars, 20 trailer cars with rest-rooms, and 20 trailer cars without rest-rooms. STV is providing full time, resident inspection services to monitor the carbody fabrication process in Toyokawa, Japan. STV also employs two full time, resident inspectors at the point of final assembly in Milwaukee, Wisconsin. STV's responsibilities include:

- Complete review of all drawings, calculations, engineering test reports, and in-process test plans.
- Review of the carbuilder's proposals assessing technical merits, compliance to the technical specification, and conformance to applicable governing regulations and industry standards.
- Comprehensive monitoring of all aspects of the manufacture of the vehicles, their subsystems, and major components.
- Administration support for the cars' 2-year warranty.
- Management and tracking of all correspondence, preparing minutes for all meetings; maintaining databases of drawing comments, action items, and open issues; and maintaining a project website for distributing correspondence, drawings, and test procedures to the client, carbuilder, and STV's engineers.



VRE exercised an option to purchase 50 additional gallery cars under an original contract with STV for the procurement and manufacture of 11 cars.

Utah Transit Authority, Procurement of Bi-Level Cars

Contact: Todd Provost, Project Manager, 801-287-2541

PB provided engineering, inspection, and testing services for the procurement of new bi-level passenger vehicles for the commuter line between Salt Lake City and Pleasant View, due for start up in 2008. UTA negotiated a “piggy back” procurement on the Albuquerque, NM, Road Runner commuter line contract of 20 bi-level cab cars designed and manufactured by Bombardier Corporation at the Thunder Bay, Canada facility with final assembly in Plattsburgh, NY. PB performed FAls on the HVAC system, the door controls and the cab signal equipment. PB is currently providing QA oversight during construction in Thunder Bay, Canada and final assembly and witnessing the testing in Plattsburgh, NY.



LIRR, M-1 Cars Component Replacement Program

Contact: Robert Clinton, Project Manager 718 558-6890

STV was awarded a contract by Long Island Rail Road (LIRR) for the replacement of selected components and systems on 132 M-1 EMU cars. The components were selected based on their relative impact on fleet reliability. STV's services included:

- Replacement of air conditioning compressor/condenser units, evaporators, Automatic Train Control (ATC), air compressor and brake equipment, propulsion system, door operators, heat circuit breaker panels, buffers, and train line systems. The propulsion system replacements included new main control groups, cam control overhaul kits, and new traction motors. Most of the systems were replaced in kind, with the exception of the propulsion system, which was upgraded.
- Assisting LIRR's effort in procuring, installing, and testing these components on the existing M-1 vehicles to improve the overall performance of the components. STV provided acceptance testing inspections and procedures, developed a quality program, and provided training assistance.
- Assisting in the procurement and installation of Phase II systems, including the installation of new or overhauled components for trucks, evaporators, toilets, inverters, and ATC and HVAC control panels.



STV has completed the replacement of selected components and systems on 65 of LIRR's M-1 EMU cars.

Sixty-five pairs of M-1 cars were completed under the program. Specifically, 34 D4-AS compressors with 15-horse-power motors were installed, and 31 were retrofitted and installed. The door operators and GE Equipment and Propulsion System rebuilt. Ninety-six sets of trucks were received from the manufacturer, and new trucks were installed on 16 M-1 cars. Evaporator units were installed in 10 pairs of M-1 cars. Seventy-two HVAC control panels were installed. The ATC system was inspected and recommendations for improvement were submitted to the manufacturer.

ConnDOT Repair of 33 Coaches

Contact: James Fox, Principal Engineer, 203 789-6951

STV is responsible for providing engineering services to ConnDOT for the repair of 33 coaches that were acquired from Virginia Railway Express (VRE). These vehicles are stainless steel push-pull coaches originally manufactured by the Brazilian company Mafersa in the 1980s. The repair specification has been completed and the contract awarded to Kawasaki Rail Car in May of 2006. STV's responsibilities include the preparation of a repair specification, providing project management services, conducting design reviews, and managing inspection services.



For ConnDOT, STV prepared specifications for the repair of 33 coaches originally manufactured in Brazil for VRE.

NJT, Bi-Level Push-Pull Commuter Railcar Procurement

Contact: John Squitieri, Director of Passenger Vehicles, 973 491-8265

STV was recently awarded a 2-phase Rolling Stock Consultant Services contract by NJ Transit to manage and administer the procurement of 200 locomotive-hauled bi-level passenger railcars. STV's duties included:

- Engineering services to determine clearance constraints, seating capacity, passenger access, operational requirements, and the use of new technology for developing a universal bi-level design concept for use throughout the NJ Transit rail system.
- Advanced computer simulation for the creation of a virtual "walk-through" of this new bi-level concept, giving NJ Transit the capability of viewing the interior of the new bi-level through the eyes of a virtual passenger. The process was useful in selecting color schemes and analyzing space relationships without constructing a mock-up.
- Performance of design services, including technology assessment and subsystem interface as well as assistance during design reviews and FAIs.
- Performance and supervision of all inspections, including on-site and railroad test site inspections. In addition, the firm
- Management and documentation of all invoicing, scheduling, estimating, and change order activities and provided close-out and acceptance support.

NJT, Arrow III Interim Overhaul Study

Contact: Charles Prehm, Chief Mechanical Officer, 973 491-7927

STV defined a work scope suitable for use by outside suppliers for a life-extension medium overhaul for 230 25-year-old electric multiple-unit (EMU) cars. The firm identified life-limited components in the cars that needed to be replaced, providing documentation, and producing specifications for the component replacements. The main components replaced included:

- Main inductors
- Brake components including valves
- Elastomeric parts and high-wear interior components.

Caltrans "On Call" Engineering Contract for Commuter Rail

Contact: Leo Hoyt, Chief, Manager Equipment, Track, & Inspection, 916-654-6327

PB's work scope includes project management, project controls, systems engineering, inspection, testing, and construction management. Tasks performed by PB under this work scope include:

- Providing engineering and inspection support during the midlife overhaul of the 66 California Cars. Duties have included engineering design review, engineering solutions, inspections to verify quality, and process improvement.
- Performed an industry survey of potential regulatory changes and provided a report of upcoming APTA and FRA standards and requirements for locomotives
- Wreck repair inspection oversight
- Engineering to modify the door control wiring on the food service cars,
- Lighting study and prepared a report to make recommendations as to whether emergency low level lighting needed to be active or passive.

MBTA Commuter Rail Coach Procurement

Contact: William LeLacheur, Sr. Technical Project Manager (617) 222-5318

PB has provided project management and engineering services to the MBTA for the purchase of 75 high-capacity locomotive hauled push-pull coaches for the commuter rail system. The stainless steel bi-level cars are 85 feet long and have an average seating capacity of 180 passengers. The services provided by PB included overall program engineering, base line car delivery, engineering design review, equipment acceptance testing, quality assurance and car acceptance.

Pilot cars were constructed entirely in the Kawasaki plant in Kobe, Japan. Subsequent production car shells were fabricated in Japan and shipped to the United States for final assembly at the carbuilder's facility in Pittsfield, Massachusetts. PB tasks included engineering design review, equipment acceptance testing, quality assurance, and car acceptance.

As a follow-on to the procurement services for the 75 cars, PB provided the same services for the purchase of 17 additional bi-level cars and is currently involved with the latest procurement of 15 additional vehicles.

METRA Gallery Commuter Car New Fleet Procurement

Contact: Richard Soukup, Chief Mechanical Officer (312) 322-6575

This program provided the first commuter cars in the United States to be delivered under the mandate of the ADA. Metra was recognized as a leader in meeting the ADA standards despite the unique and often hostile commuter railroad operating environment toward ADA compliance pioneers. A total of 313 commuter rail cars were rehabilitated and acquired by Metra for regional commuter rail services under contracts engineered and administered by STV. Services included:

- Technical assistance and administrative support for the procurement of new Gallery Commuter rail cars. The car body and internal structural components were fabricated and assembled in Nagoya. The car bodies were shipped to the South Chicago assembly facility where the running gear, motors,



STV engineered and administered several contracts for the rehabilitation of 313 Gallery cars for Metra that were the first cars to be delivered under the mandate of the ADA.

and major sub-assemblies manufactured by American companies were added and the final assembly and testing of the cars took place.

- Coordination and administration from project award through the final testing and acceptance of the 173-car Gallery Commuter fleet.

LIRR C-3 Coaches, DE-30/DM-30 Locomotive Procurement Program

Contact: Robert Dolencie, Sr. Mechanical Engineer, New Fleet Equipment Engineering, (718) 725-2639

STV was awarded a 2-phase rolling stock consultant services contract by Long Island Rail Road for management and administration of the procurement for a new fleet of 134 diesel-hauled, bi-level C-3 passenger cars; 23 diesel-electric DE-30 locomotives; and 23 dual-mode DM-30 locomotives under an aggressive schedule the largest contract of its kind for LIRR in recent history.

In Phase I (pre-award), STV provided bid evaluation services, including a review of builders' submittals, five bids for the C-3 bi-level car contract, qualifications, builder stability, an assessment of proposed specification compliance, and life-cycle/reliability review for the fleet of passenger cars and locomotives.

STV's work on the C-3 coaches included consulting services during the design, assembly/ inspection, delivery/testing and warranty administration phases of the project. Inspection during production was performed at Kawasaki's facilities in Kobe, Japan and Yonkers, NY.

Caltrain F40PH-2 Locomotive Overhaul / Gallery Rail Car Overhaul

Contact: Steven Coleman, Project Manager, (650) 508-6309

PB provided engineering and inspection services to Caltrain during the overhaul of 20 F40PH-2 locomotives and 73 bi-level gallery cars. These locomotives were acquired by the joint Powers Board from 1985 through 1987. Under this contract, PB provided for both bi-level cars and locomotives:

- Pre-production design review,
- FAIs,
- Production line inspections,
- Post-production acceptance testing,
- Commissioning,
- Warranty oversight, and
- For the locomotives, oversight of the conversion of the direct drive HEP package to an independent modular diesel HEP unit.



PB managed and provided engineering and inspection services for the mid-life overhaul of 66 California cars for Caltrans.

NJ Transit Comet V Commuter Coach, ALP-46 Electric Locomotive and PL-42AC Diesel Locomotive Procurement

Contact: John Squiteri, Director of Passenger Vehicles (973) 491-8265

In 2000, STV was selected to assist NJ Transit in the procurement of its new Comet V push-pull commuter car fleet and the new ALP-46 electric and PL-42AC diesel locomotives of Consisting of 265 Comet V cars, 29 ALP-46 locomotives and 33 PL-42AC locomotives. With an innovative digital control network in place of the conventional 27-pin inter-car jumpers, the NJ Transit fleet will be in the forefront of commuter rail operations.

In addition to the advanced technology, the cars and locomotives will also be among the first to have to meet the passenger rail equipment safety standards requirements of 49CFR238.

Project Understanding / Technical Approach

Project Understanding

The MBTA commuter rail fleet is made up of diesel electric locomotives and single and bi-level passenger coaches. As part of the overall maintenance of its vehicles, the MBTA is embarking on a mid-life overhaul of 75 bi-level coaches built in 1990 to 1991.

The mid-life overhaul of passenger rail equipment addresses systems, sub-systems and components not normally addressed during routine scheduled maintenance. The goal of a mid-life overhaul is to repair or replace equipment to ensure satisfactory performance in the second half of the vehicle's useful life. This maintenance of worn systems and components in a scheduled manner minimizes unscheduled in-service failures and maximizes vehicle availability and maintenance efficiency.

The MBTA's commuter rail fleet is comprised of several different classes of vehicles, both passenger coaches and locomotives. The make-up of the Authority's rolling stock is presented in the following table:

Passenger Coaches				
Qty	Year Built	Manufacturer	Vehicle Class	Notes
Bi-Level Coaches				
50	1990-91	Kawasaki	BTC-4	
25	1990-91	Kawasaki	CTC-4	
17	1997-98	Kawasaki	BTC-4A	
15	2000-02	Kawasaki	BTC-4B	
33	2004-06	Kawasaki	BTC-4C	Toilet Coaches
Single Level Coaches				
57	1978-79	Pullman / MK / Amerail	BTC-1C	Overhauled in 1996
40	1987	Bombardier	BTC-1A	
33	1987-88	MBB	BTC-3	Toilet Coaches
34	1987-88	MBB	CTC-3	Toilet Coaches
54	1989-90	Bombardier	BTC-1B	
53	1989-90	Bombardier	CTC-1B	30 Blind Coaches
Locomotives				
Qty	Year Built	Manufacturer	Vehicle Class	Notes
25	1972	EMD	GP40MC	1997-98 Rebuilt GEC-Alstom
18	1978-81	EMD	F40PH-2	1989-90 Rebuilt Bombardier
25	1987-88	EMD	F40PH-2C	2001-03 Rebuilt Motive Power, Inc.
12	1990-91	MK	F40PHM-2C	2003-04 Rebuilt Motive Power, Inc.

The development and performance of an appropriate, focused mid-life overhaul will help the MBTA enjoy the maximum useful life of their existing fleet of vehicles. STV/PB will ensure that not only will the overhaul scope be suitable and technically sound, but also that the selected contractor(s) will perform the overhaul work on the 75 coaches with high quality and workmanship.

Our team understands that as part of this overhaul MBTA will upgrade cab car controls including ACSES, event recorders, radios, as well as other design aspects such as cab and coach car doors, HVAC, communications, trucks, brakes, interior components and the carbody.

Technical Approach

Inspection and Specification Preparation

Fleet Inspection: A fleet inspection and the subsequent condition assessment will be performed on the 75 baseline bi-level coaches.

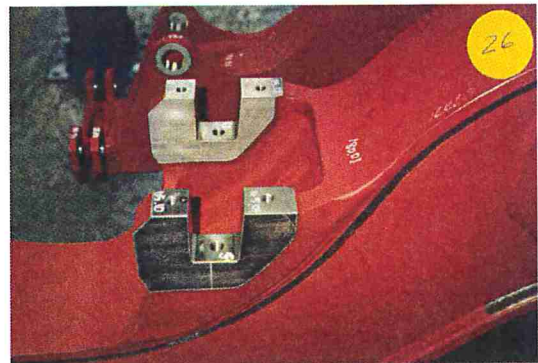
To begin the development of the passenger coach mid-life overhaul scope of work, STV/PB will need to determine the condition of the rolling stock. The Team will perform an assessment inspection on a representative sample of both cab cars and coaches to determine vehicle condition, as well as system and sub-system functionality. Based on the Team's rail vehicle inspection experience, STV/PB will implement an inspection methodology conducive to the performance of a thorough, non-biased, quantitative evaluation of the sample vehicles. Check-off sheets will be produced specific to the MBTA cars to enable a standard approach and reporting system to be initiated. Inspection findings will be entered into a database system to facilitate the continued use of this key information during the preparation of the Technical Specification.

STV/PB will define the number of vehicles suggested as a representative sample of the fleet. The sample size will be reviewed with the MBTA. We anticipate a sampling size of 7 to 10 cars will be randomly selected for visual inspections. A smaller number of vehicles will be used for systems or components that require disassembly.

For example, the floor and subfloor will be inspected on a minimum of one or two cars to determine if a damage pattern exists or if the entire floor should be replaced. This inspection will require the removal of floor components to assess the existing conditions. Interior panels and trim will be examined for possible cleaning to an acceptable appearance level for reuse. Also, car components will be inspected, and where required, tested to define the amount of rework.

A detailed inspection of the truck will be conducted. Since this truck was modified to correct the original primary suspension spring rates, an inspection and sampling plan will be prepared for approval by the MBTA. The inspection will require at a minimum four trucks to be radiographed per ASTM/ASNT standards. The initial radiography will define the inspection levels required for the balance of the trucks. Magnetic particle inspection will be used to augment the radiography. Particular attention will be paid to the spring pocket where weldment modifications were made, to allow for a deeper spring pocket.

Vehicle inspectors will collect information to evaluate the condition of both cab cars and trailer coaches, broken down by sub-system and major component. Information will be evaluated not only for average vehicle class condition, but also for specific deviation from that average. If it is found that the average condition ratings are not accurately representative of the vehicle class, further specific inspections may be required.



The bi-level car truck suspension system has been an area of concern and will be carefully inspected so that an effective solution to past problems can be developed.

Condition Assessment Report - STV/PB will consolidate the raw information collected on the inspection data sheets into a condition assessment report describing the condition of each fleet. Condition information will be presented in the report for both cab and trailer coach specific issues, and further broken down by system, sub-system and component, to the degree necessary for the subsequent scope development.

Passenger Coach Overhaul Scope - The Condition Assessment Report will provide the basis for the development of recommendations and the ensuing formal scope of work for the overhaul project. The Team will also review the original manufacturers' maintenance recommendations as well as current industry standard practices. STV/PB will also incorporate requirements to ensure compliance with any applicable regulations implemented since the manufacture of the cars. This could include new FRA Regulations, APTA PRESS Standards and Recommended Practices, ADA regulations and FRA Smoke and Flammability criteria. Any deviations will be documented for preparation of a request for waivers from the DOT.

STV/PB is very familiar with the MBTA's ongoing maintenance operation and system operating environment. This information will also be considered when developing overhaul requirements. Additionally, the Team will meet with the Authority throughout the inspection and specification development process to present progress to date and solicit comments and recommendations. The consolidation of all this information with a review of maintenance records will produce a comprehensive set of recommended maintenance and overhaul tasks.

Based on its knowledge of the MBTA's rolling stock, the Team will work on the principle that there will be a comprehensive midlife overhaul. The HVAC, doors, brakes, communications, trucks, carbody, will all get a rebuild of subsystems. Product improvements that have been performed on the three follow on orders of bi-level cars will be included. Many key elements of a typical comprehensive overhaul scope for the MBTA coach fleet stated below in the following list. Both STV and PB have extensive experience on inspection, re-qualification and overhaul. Based on the Team's experience and understanding of the current condition of the MBTA rolling stock, the scope of overhaul would include:

Trucks	
Frame Magnetic Particle Inspection	Mod to install New Handbrake Rigging (DBU)
Radius Arm Re-Qualification	Bolster Pressure Test
Bolster Magnetic Particle Inspection	Replace Primary Springs
Spring Pocket Re-Qualification	Check Tram, Repair as necessary
Wheel Re-Qualification	Repaint
Bearing Re-Qualification	
HVAC System	
New Microprocessor Control	Dual OHPT Operation
Rebuild/Replace Compressor	Rebuild Condenser
Rebuild Evaporator	Update Controls
Add Switch for Protective Heaters	Cleaning HVAC Ducts
Add Service Light	Add Electric Unloaders
Fresh Air Duct Modification	Add Fresh Air Dampers and Blowers
Door Pocket Protective Heaters	
Typical Upgrade of the Communications System	
Add PEI	Add GPS
Add Dynamic Signs	Add Voice Announcements
Add ADA Door Announcements	Add PA Test Jacks
Typical Upgrade of the Door System	
Add Door Recycle	Add Powered Operation (Local)
Add Door Summary Circuit	Add Traction Power Interlock

Product Improvements on Subsequent Car Procurements for MBTA

Add End Gates	Add Trap Door Release
Remove Safety Curtains	Upgrade Trap Door Springs
Yellow Epoxy Step Well Alert Stripes	Replace Pencil Latches
Upgrade Safety Yellow Strips on Stairs	Coupler - Improved Anticreep
Face Coupler Carriers	Seat Cushion Retention

Typical Upgrades to the Cab Controls

Upgrade Operators Seat	Heated Windshields
ACES	New Event Recorder
New Alerter	New Cab Heater
New Controller	"Cleaner Cab"

Although the scope as described above is typical for a comprehensive overhaul, it can only be finalized after reviewing the condition assessment and recommended maintenance tasks jointly with the Authority.

Other systems that may be identified for maintenance attention could be areas of high stress concentrations, car batteries; exterior lights and indicators, interior lighting and emergency lighting; and passenger seating,.

The Final Work Scope will be established after additional technical information has been obtained and reviewed for the new and overhauled subsystems that best meet the objectives of minimum maintenance, ease of repair, ADA compliance, standardization, and cost effectiveness.

The use of CADD generated conceptual drawings will help facilitate the evaluation and joint development of the final work scope the MBTA and STV/PB. The final work scope will also define those components or items that may be replaced on an as required basis. This could be for items such as undetected hidden damage, structural corrosion damage, and floor repair.

Technical Specification Preparation - STV/PB will develop a Technical Specification thoroughly describing an appropriate, focused overhaul scope of work.

Specification and Procurement Document Preparation - Following the finalization of the Final Work Scope, a technical specification will be developed to detail the equipment to be supplied and the work to be performed for cab cars and coaches. The technical specification will thoroughly describe the re-habilitation, overhaul and/or replacement of the systems, sub-systems and components targeted in the overhaul scope. A number of other potential areas of modifications to the cars would require MBTA inputs and agreement - an example of which might be moving vestibule walls to accommodate ADA regulations enacted after the base cars were built.

Specification Release - The preliminary project advertisement documents will be prepared and the car overhaul specification released for industry comment. All comments received from suppliers and overhaul contractors at pre-bid meetings and from formal submittals will be carefully reviewed to evaluate their merits relative to the established objectives of the overhaul program. Specification addenda will then be issued to accept appropriate changes. After final review with the MBTA the Request for Proposal (RFP) will be released with the associated contract terms and project schedule.

Coach Overhaul Procurement Support - Procurement support for the passenger coach overhaul will include the preparation of additional advertisement documents and attendance at pre-bid meetings. As directed by the Authority, the Team will conduct site visits and evaluations of proposed work sites. Meeting minutes and reports resulting from these activities will be prepared and submitted for review and acceptance in a timely manner

Throughout the procurement process, STV/PB will revise procurement documents and drawings as required. In addition, STV/PB will maintain an up-to-date specification and bid document addenda as required. STV/PB will provide to the Authority complete as-awarded and as-built specifications.

To assist the MBTA in the evaluation of potential overhaul contractor's, the Team will prepare an engineer's estimate for the specified overhaul work.

Design Review

Design Review - The design review process will permit the STV/PB team to thoroughly evaluate the contractor's proposal with regard to specification compliance. Drawings, procedures, analyses and all other documentation that makeup the proposed overhaul program will be investigated and reviewed at the vehicle, system, subsystem, and component levels so that implementation meets the specification requirements. Additionally, a comprehensive design review program will allow the STV/PB team to isolate and eliminate potentially weak and troublesome elements.

For the duration of the design review process, the STV/PB team will provide expert technical assistance to help facilitate the successful development of a fully specification compliant overhaul program, both at the vehicle and sub-component levels. In the course of the various activities that make up the overall design review process, the STV/PB team will function as a technical extension of the MBTA staff. The team will review documentation and provide feedback in the form of recommendations of approval, rejection or possible means of design improvement.

Contractor Implementation Plan - Once an award is made to the successful contractor, first and foremost among the activities to be carried out is an extremely thorough and well-documented kick-off meeting. Although it is expected that fully conformed specifications will result from negotiations with the suppliers prior to contract award, it is our experience that a thorough review is also necessary at the kick-off stage. This review makes certain that all ambiguities are removed and that there is a clear understanding by all parties of the intent of the specification.

The key staff members from all organizations involved will be introduced and their level of responsibility defined. Methods of communication will be established at project initiation, with the emphasis on fast and effective transfer of information and responses.

System Integration - The design review process also provides the opportunity for the team to evaluate the system and component design for issues related to system integration. The final overhaul scope shall require that the contractor be considered the system integrator throughout the program. As such, the contractor shall be required to incorporate into the design process an appropriate mechanism to ensure the successful merging of the functional and technical characteristics of all interconnected sub-systems and components into a comprehensive, interoperable system. The System Integration review will be conducted as separate Design Reviews with coordination between the carbuilder and the subsystem suppliers.

Just as the contractor will need to ensure communication between its system designers and sub-system suppliers, STV/PB will foster a similar communication between its design review engineers. Sub-system interconnection details will be reviewed by all affected system engineers, and interface gaps brought back to the contractor for resolution.

Regulatory Compliance - An important part of the design review process is the review of the proposed design for compliance with applicable government regulations and industry practices. STV/PB will review the contractor's proposed design to evaluate that it is fully compliant with these requirements.

Drawing Review - An important part of any design review work is a detailed review of contractor's and supplier's engineering drawings and procedures. These drawings and procedures will be the basis for the

documentation of the overhauled vehicle and its components. Therefore, we will review these drawings and procedures to verify that the overhaul process will result in a vehicle that meets the requirements defined by the specifications. This review will address all technical submittals, including engineering drawings, engineering design, production procedures, and calculations and analysis.

Management Review - A key to the success of a vehicle overhaul program extends beyond the contractor's ability simply to refurbish the equipment, but to successfully manage the overall project. To this end, the STV/PB team will evaluate submittals relevant to the contractor's management approach. This would be anticipated to include the contractor's Project Management Plan, Quality Assurance Program Plan, Master Project Schedule (including the Production Schedule), and Safety Program Plan. The team will also review and provide comment and recommendations to MBTA on other procedures such as document transmission, material submittal and responsibility, and individual test procedures. Throughout the program, STV/PB will monitor the management performance of the contractor, especially on historically challenging issues such as the management of suppliers.

Change Order Evaluation - The STV/PB team will technically evaluate and provide comments and recommendations to MBTA in response to proposed design changes. Changes may be elicited either by a formal request for change proposal or by simply asking the contractor to submit a change proposal. In either case, change proposals must contain specification references, details, impacts, vehicle weight, delivery schedule, and cost. STV/PB will thoroughly review all proposals and perform an independent assessment of impacts, including an analysis of the manufacturer's design and justification for the proposed change. Our response will take one of four forms:

- Recommended approval,
- Directive-to-proceed (to effect early cut-in) and negotiate,
- Request additional information, or
- Recommend rejection of change.

A change order management process will be created that uses a database tracking system to maintain effective control over change orders. The change order management process established by STV/PB in conjunction with MBTA will include specific procedures for the initiation, administration, preparation, review, processing, and control of change orders. The process will track changes from the time they are initiated until the work involved is completed, accepted, and paid for.

Qualification Testing - Qualification and Design Verification Testing is a vital step in the overall design review process and confirms that, upon manufacture, the physical characteristics and functionality of each component meets the required design specifications. The team will review and comment on all test procedures to make certain that specification compliance, production quality, and manufacturing repeatability are being tested. Any functional discrepancies or specification non-compliance will be fed back for re-evaluation and possible design revision. Qualification Testing provides a vital check and balance to the overall design review process, and is sometimes conducted in conjunction with the First Article Inspection.

Due to the nature of the scope of the overhaul tasks, it is expected that qualification testing will address components of a new design, not currently employed on existing MBTA rolling stock. Qualification testing would not be expected on components being replaced in-kind.

Following successful completion of the testing STV/PB will review and make recommendations for the acceptance of the submitted Qualification test reports.

First Article Inspections (FAIs) - The final step in the design review process is a comprehensive First Article Inspection (FAI) program. The FAI program can also be seen as the bridge from design to manufacturing, providing for the transfer of day-to-day responsibility from engineering to quality

assurance. The FAI will confirm that the manufacturing processes and quality procedures are appropriate to make sure that each component will be produced consistently, at the level of quality established during the FAI. Before a FAI takes place, the team will review the FAI documentation and schedule for feasibility within the production schedule. The STV/PB team will attend FAIs; oversee test procedures and results, and supply reports and recommendations to the MBTA.

Passenger Coach FAI Program - The FAI program for the coach overhaul will depend on the systems, sub-systems and components included in the final overhaul scope. It should be noted that the FAI may be an inspection and evaluation of an overhauled or rebuilt component, rather than a new unit. If the overhaul scope developed for this program is based on the typical overhaul project presented above, the FAI program would be expected to include the following:

- HVAC System
- Door Controls
- Communications/GPS/Signage
- Cab Signal Package
- Event Recorder
- Cab Seat
- Lighting
- Seating
- HVAC Controller
- Truck - Complete
- Brakes
- ACSES
- Ditch lights
- Power Supply/Batteries/Battery Charger
- Couplers/Draft Components

Technical Services - As part of its support to MBTA, the STV/PB team will provide assistance in all technical aspects as required. The STV/PB team will attend conferences, meetings, and demonstrations, as requested by the MBTA, providing conference reports and comments and recommendations in a timely manner. At the MBTA's request, the team will provide a full-time resident engineer with the experience and expertise to provide technical assistance in the design review process.

In-Plant Inspection

In-Plant Inspection Program - Following the successful completion of the FAIs, the focus of oversight during the manufacturing and overhaul process becomes the in-plant inspection program. The execution of a comprehensive in-plant inspection program is vital to the success of any vehicle overhaul or re-build program. The goals of in-plant inspection are to:

- Check that the quality of the material used is in conformance with the requirements of the specifications
- Oversee that workmanship and production quality meet or exceed the levels set at the FAI.
- Determine whether the overhaul contractor's and component suppliers' Q/A systems are sufficient to help guarantee the performance of all rebuild and overhaul maintenance activities.
- Examine the quality of the overhauled vehicle, within the extents of the overhaul scope, to determine if the design and performance requirements have been met or exceeded.
- Follow usage of Bid Based Quantity of pool of material for overhaul
- Advise of potential extra work claims

STV/PB personnel assigned as in-plant inspectors are more correctly categorized as on-site Quality Assurance Representatives (QARs). Beyond merely observing and documenting inspections and testing procedures, these individuals possess the experience and judgment to offer meaningful insight to the cause and remedy of problems. Although fully capable of functioning independently in the establishment and implementation of an on-site inspection presence, they never lose sight of the overall project goals and their role of front-line inspection as part of a closely-knit project team. Key to performing the duties at the car overhauler's facility will be resolving issues at the carbuilder's plant. The Team is expected to

make decisions locally for problems that arise, only those issues that cannot be resolved locally, or require major redesign efforts will be moved up the chain of command to Program Manager and MBTA.

The QAR will have access at all times to the technical resources of the entire STV/PB engineering and quality staff as well as members of the project management team. Any special experience, expertise or knowledge required to effectively and efficiently resolve a situation will be brought to bear immediately upon the QAR's request.

The first step in in-plant production oversight is a thorough Quality Audit. The QAR with any necessary assistance by other members of the project team will perform and document the Quality Audit, which will provide focus through the remainder of the in-plant inspection process. At a minimum, the Quality Audit will include the following components:

- Review of the Quality Assurance Plan and its implementation
- Inspection and verification of manufacturing capability
- Confirmation of compliant test equipment calibration
- Verification of properly qualified/certification personnel and procedures for special processes (welding, brazing, soldering, Painting, etc.)
- Review of Discrepant Material Process
- Review of Receiving Inspection Process
- Review of communications and documentation management

Following the Quality Audit, the Team will begin the implementation of a comprehensive in-plant inspection program. The Team will use the results of the Quality Audit to fine-tune the program to account for any identified weaknesses or trouble spots. The components of an in-plant inspection effort include the following:

- Inspection of sub-systems and components at the point of manufacture and upon receipt
- Inspection of the final assembly process with "hold points" and general surveillance
- Monitoring of the overall production process including "back shop" work
- Inspection of the overhauled vehicles prior to shipment
- Communications and Reports

STV/PB will use the formalized "hold point" and roving in-plant inspection (surveillance) services at the contractor's facility as well as those at the subsystem suppliers.

The production tooling, machinery and test equipment will be inspected to confirm that it can produce or overhaul components to the required quality standards. In addition, the training, experience and ability of the work force to produce quality work will be evaluated.

We will provide a quality audit of the contractor and the principal subsystem suppliers. Based on the audit results of the subsystem suppliers a matrix will be developed that will rank them by the following criteria, allowing the cost-efficient monitoring of the suppliers:

1. Safety Critical Equipment
2. Maintenance History
3. Supplier Responsiveness and Reliability

At the start of the in-plant inspection process, the QARs will assess the overhaul contractor's manufacturing plans and will work with the production personnel to encourage the most organized and logical workflow. The QARs will help verify the contractor has implemented appropriate inspection hold points to view work-in-progress, especially when the work will be covered or hidden by a subsequent manufacturing step.

In process and final inspection programs will be examined to verify that the production "hold points" are provided to permit confirmation of acceptable quality levels before items are covered up in subsequent operations or the vehicle proceeds to the next station for further work. Inspection of in process and completed components will also be provided as well as a review and critique of the suppliers and contractors quality assurance and inspection programs. The associated quality assurance documentation will be reviewed for completeness and specification compliance.

The material handling procedures will be reviewed and will include the procedures for material receiving, returning of defective items, material storage, material delivery at worksites, packaging and shipment of finished items, and unloading at delivery sites. Special attention will be given to all components that are removed that are to be cleaned and re-installed. These components must be stored in a safe place, indicating the car numbers and locations from where they were removed.

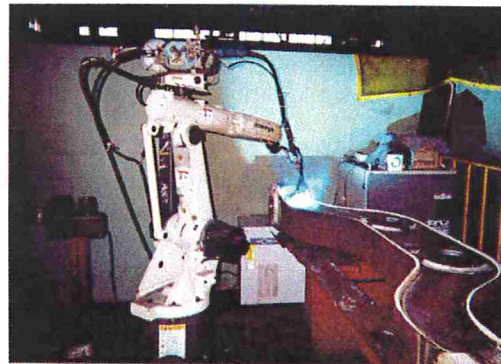
The car assembly program will also be continuously monitored and critiqued to verify specification compliance and satisfactory configuration management. If any deviations or changes are suggested or required they will be reviewed relative to responsibility, possible extra work allowance, schedule impact, configuration control, retrofit requirements, and documentation changes.

The STV/PB team will provide reports to the MBTA regarding all inspection services as well as written certification when cars are ready for shipment to the MBTA. This will include inspection documentation by car, discrepancy reports and related corrective action plans, and preparations of release for shipment certificates and shipping exception reports.

The STV/PB QARs will perform inspections to assess compliance with contracted overhaul specifications throughout the overhaul process. The goal of this ongoing inspection program is to identify and correct discrepancies and non-conformances before components and sub-assemblies are incorporated further into the overhaul process.

The QARs will perform initial and ongoing site surveillance to determine whether the overhaul contractor and its suppliers are using quality material, manufactured by appropriately qualified personnel to a high degree of workmanship. They will also review and oversee the contractor's incoming inspection program for raw materials and received sub-assemblies. On-site inspections will also include investigations of the production tooling and test equipment, as well as the material handling processes and equipment. Additionally, the oversight extends to the witness of inspection and testing of randomly selected components to further verify specification compliance and acceptable workmanship.

The STV/PB team will ensure that all welding activities whether on new products or repair welding are planned, conducted, and inspected within the requirements of the American Welding Society and their applicable codes and standards. The team includes an AWS Senior Certified Welding Inspector (SCWI) and Certified Welding Inspectors (CWI) s that are fully aware of AWS requirements and standards and capable of enforcing them.



Welding activities will be quality-checked to ensure they are performed according to American Welding Society codes and standards.

QAR Responsibility - The resident inspector will be responsible for managing the site quality activities. The inspector will at a minimum be required to manage and report to the STV/PB Project Manager on a weekly basis, but keep daily logs of the following.

- NCR Material Review Board recommendations.
- Prepare and update a Milestone matrix.
- Attend a regularly scheduled Quality meeting with the contractor and issue minutes.
- Participate in the Qualification and Acceptance vehicle site testing.

These responsibilities will be conducted at all site locations, including Boston.

In the event of identified manufacturing mistakes or defects, the QARs will represent MBTA in verifying the contractor develops practical and sound corrective actions. Part of the process of dealing with discrepant work is to make sure that the corrective action is implemented quickly to remedy a faulty process or method. These actions must be handled properly and promptly to minimize the impact on the production of subsequent items.

A critical function of the on-site representative is to respond to any extra work or hidden damage claims identified by the Contractor. Before any work begins on the Project the QAR, Project Management and Contractor will develop a plan for dealing with any Out of Scope Work. The plan will be presented to MBTA. The Plan will work generally as follows: Upon being advised of any proposed extra work, the local QAR will advise the Project Manager of the issue. For issues where a float of available extra material is available, the QAR will decide locally what is to be used from this pool. An example of this is a repairable or questionable evaporator coil. The QAR will work with local Contractor's QA representatives to decide whether to attempt a repair or replace with a new coil. For issues where the Contractor requests additional costs, the QAR will advise the Project Manager for appropriate handling as to whether it is extra work. If so, and MBTA concurs with the need to perform the work, the Contractor shall submit a written proposal. MBTA will authorize the need for extra work, before any work begins.

The on-site inspection program will play a vital part in the overall configuration control over the course of the project. Inspectors will oversee the implementation of the rebuilder's configuration management systems. STV/PB QARs will confirm and document that procedures and material, including software, being used in the manufacturing facility are of the most recent revision. They will verify that any design changes and/or modifications implemented during the production run are closely monitored and accurately documented by the contractor. The QARs will provide this information for incorporation into a comprehensive configuration spreadsheet, which will provide up-to-date fleet configuration status throughout the overhaul process.

In addition to reviewing the quality of the components and the final assembly, an equally important function of our field staff is to monitor and report on the progress of the contractor and the component suppliers relative to the planned project schedule. Our QARs will review the production and receipt of component parts, as well as general activity in the production plant(s), to anticipate and help avoid production bottlenecks.

Pre-Shipment Testing - STV/PB QARs will make certain that each vehicle has been re-assembled in an acceptable fashion in compliance with MBTA specifications, and is in a condition suitable for shipment. At the outset of our assignment, we will have discussed with the contractor the criteria for vehicle inspection prior to release from the overhaul plant for shipment. Prior to release, we will review all documentation to see that required tests have been successfully performed and passed; that all previously noted deficiencies have been corrected; and that all relevant records, documentation and paperwork are up-to-date. STV/PB task leaders and QARs understand that timely delivery back to the MBTA is critical to maintaining the operating fleet of the commuter rail system. We recognize that taking cars out of service for the overhaul takes cars out of revenue service. Every effort will be made to keep the float of "out of service" cars to a minimum. At the same time, the quality of workmanship and testing of the upgraded systems must be verified. Our QARs have demonstrated on other MBTA projects their ability to balance the importance of getting the work done and staying on schedule with the need to get problems resolved at the overhaul facility before cars ship.

Vehicles will be inspected for vehicle, system, and subsystem functionality, within the scope of the overhaul program. Results of pre-shipment testing will be documented for transmission to the MBTA, with comments and recommendations, up to and including written certification that the vehicles are suitable for shipment. Prepared records and reports will also be used in tracking overall project progress, support of progress payments, and tracking of change orders.

Defects found during pre-shipment testing that would not significantly affect a release, but will require resolution before MBTA acceptance, will be documented and tracked as an open item. Open items will be incorporated into each vehicle's final acceptance testing record and will be tracked until resolved by the contractor. STV/PB will submit the open item list to the MBTA Project Manager for review prior to each vehicle's release for shipment.

Testing Supervision

STV/PB will witness qualification, acceptance testing of materials, sub-systems and completed vehicles at the contractor's, as well as the supplier's, facilities. Test schedules will be carefully reviewed to make sure that critical path components have sufficient schedule float to permit possible additional testing, rework, or re-testing.

Test procedures will be reviewed for purpose and objective, and to determine whether they are specification compliant. The team will also confirm that the test procedures contain all pertinent information, including a clear test agenda and criteria for test acceptance or rejection. Each test procedure must also clearly and accurately state test facility and equipment requirements, as well as providing for the recording of results and observations. The test facilities, test implementation, and appropriate equipment calibration will be reviewed prior to the commencement of each test to be witnessed so that accurate test results can be produced by the contractor and components suppliers.

Where possible and as required, new technology will be subjected to additional testing to examine its ability to function in the rail car environment.

Each test report will be reviewed and approved (or rejected) based on the compliance with the test specification. If life tests or burn-in tests are required, success may be established through statistical analysis. Subsystems that will require burn-in testing are at a minimum:

1. Cab Car Control
2. Doors - the complete subsystem assembly
3. HVAC System and Controls

Verification of production quality and specification compliance will continue after vehicle delivery to the MBTA system. First the team will inspect all the cars as received by the MBTA to verify that all parts are correctly assembled and wired and that no physical damage occurred during shipment from the manufacturing facility. After railroad operating arrangements have been established and car instrumentation has been installed and checked, car functional testing will begin using locomotives and car consists so that all train line functions can also be tested. The test procedures and results will be reviewed for test plan compliance and, as required, test reports prepared. If problems or deficiencies

Our QARs have demonstrated on other MBTA projects their ability to balance the importance of getting the work done and staying on schedule with the need to get problems resolved at the overhaul facility before cars ship.

exist, we will assist the MBTA and the contractor in identifying corrective action and the associated retrofit program. When a car satisfactorily completes its test program, the team will notify the MBTA that the car is available for revenue service by preparing conditional acceptance certificates.

Throughout the entire test program, the failure data will be analyzed to determine if failures are random or are an indication that a design deficiency exists preventing compliance with reliability objectives. The STV/PB team will provide its report of the testing to the MBTA.

The team will supervise the contractor's follow-up services that are required to complete all contractual obligations. This will include a data log for each car that will contain items such as vehicle delivery, date, weight, balance, subsystem performance, and configuration.

STV/PB will monitor, inspect and periodically report on the status of all car modifications, retrofits and readjustments. Retrofit inspection will include a recommendation regarding acceptance or rejection of the work.

All manuals will be reviewed for completeness and the addition of required revisions. This would include operating, maintenance and parts manuals.

STV/PB will witness the implementation of each test, verifying that the contractor's test personnel are using latest revision of each procedure and carrying out those procedures properly. The team will oversee the collection and the accurate documentation of test results and data. Data sheets will be reviewed to make sure that they are legible and correctly filled out.

The Test Engineer is also charged with identifying "observations" during routine and qualification tests. Frequently testing identifies anomalies of a subsystem or carbody wiring, or other none test issues. The Test Engineer must be experienced enough to note these anomalies, and determine if they are problems or not, and those that are to be brought to the attention of MBTA and the car overhauler, so that they can be investigated before cars ship.

The STV/PB team will review and evaluate the results of each test. Following this, review, STV/PB will provide a report to the MBTA presenting the results of the evaluation and our recommendations on acceptance or rejection based on specification compliance. Upon completion of in-plant testing, STV/PB will provide the MBTA with a recommendation for each vehicle's release for shipment.

Throughout the entire test program, failure data will be monitored to determine whether the failures are occurring randomly or represent a trend indicating a design deficiency. STV/PB will monitor the carbuilder and will provide the MBTA with reports on the overall testing program, as required.

On-Site Vehicle and Acceptance Testing

STV/PB will assign a test engineer to the acceptance site to monitor vehicle acceptance in Boston. The STV/PB test engineer will certify and sign for the overhauled vehicles, indicating that they have successfully completed the specified test. The test engineer will also work closely with the MBTA and the overhaul contractor during the performance tests described in the overhaul specifications, noting any inconsistencies and consulting with the MBTA as to the cause of such abnormalities. A discussion and joint determination by the parties will then be made as to the acceptability, necessary repairs required or acceptance of the vehicles, listing exceptions to be resolved.

The test engineer's function will be to monitor performance and analyze the data accumulated and recorded on the contractor's instrumentation. Upon completion of the engineer's evaluation, STV/PB will submit findings to the MBTA along with any reservations resulting from analysis of the contractor data. STV/PB will confer with the MBTA and then prepare and submit to the contractor appropriate remedies and actions it needs to take to resolve any noted deficiencies. The test engineer will also be present for the joint final inspection of the vehicle before the MBTA accepts the vehicle for return to revenue service.

The STV/PB test engineer will be at the delivery site for an appropriate time prior to the vehicle's arrival to allow time for a test procedure review. To complement the dedicated Test Engineer, STV/PB have additional engineers in Boston to respond to short term notice of testing, and to also support testing on weekends and nights.

Follow-Up Supervision

STV/PB oversight from specification development through acceptance testing will mean that the MBTA achieves the final goal of configuration standardization of the overhauled equipment.

STV/PB will collect and maintain open items lists summarizing contractual requirements of the overhaul contractor and component suppliers. These open items lists will be reviewed on a regular basis to track progress and to verify whether the open items are being addressed and closed in a timely fashion. STV/PB will also oversee the quality of work being performed in the field, to verify whether the same attention to detail is being applied to all modification activities.

STV/PB will review and comment on all proposed engineering changes and field modifications. The Team will monitor field modifications and retrofits, providing the Authority with recommendations on acceptance or rejection of the work performed.

During the warranty period, STV/PB will assist in warranty administration by reviewing and developing solutions to problems, recommending corrective actions and facilitating discussions with the overhaul contractor or component suppliers.

As needed, the STV/PB team will be available during the warranty period to assist with technical requests, design concerns, reliability and maintainability issues, and outstanding correspondence items. The team will also provide recommendations to the MBTA for administering warranty claims.

Program Management

The responsibility of the STV/PB Team is to protect the interests of the MBTA throughout the development, procurement, production, testing, acceptance and warranty periods to these programs. This is accomplished by implementing the following administrative policies and procedures.

Monthly Progress Reports - We will provide monthly progress reports throughout the duration of the project within ten days of the previous month's end. These reports will address work being performed by the STV/PB Team by describing activities completed the previous month and those activities scheduled for the upcoming month. These activities will be grouped according to the specification and will include such items as:

- Engineering services budget status
- Activity summary for the preceding month
- Detailed project milestone bar chart indicating planned versus actual progress
- Open contractual and technical issues
- Quality Assurance/Quality Control issues
- Project budget and cost
- DBE participation
- Correspondence and drawing logs
- Vehicle site overhaul issues
- Project calendar, including planned activities for the upcoming month
- Status for design, manufacturing, assembly, testing and delivery
- Major problem areas and concerns
- Change order status
- Claims status and tracking
- CDRL status
- Status of modifications approvals and car retrofits

During the reporting process, STV/PB will identify areas where the overhaul contractor and/or the component suppliers are not achieving the planned rate of progress. We will also identify variances or potential variances and probable completion dates for each project element and the projects as a whole. Moreover, we will review possible alternative courses of action for recovery and make suggestions to the parties responsible for the delay.

Technical Administration - STV/PB will provide a wide range of technical administration services as required and directed by the MBTA. The Team will assist in the preparation of sketches, drawings, calculations, and other information, as required. It is envisioned that this material may be required for the clarification to the overhaul contractor, for presentation purposes, for internal purposes or as a check and balance for submitted carbuilder information.

Correspondence Control -The STV/PB team will handle correspondence as required, and will provide support for the review, evaluation and preparation for responses for project correspondence.

The team will implement a tracking procedure to facilitate correspondence control. The system, based on rail vehicle project management techniques developed on previous projects, will uniquely identify each document at the source, track it through the review and response period and verify that all required follow-up action is carried out.

Timely and accurate monitoring of all documents is imperative if the project is to proceed on schedule and with a minimum number of change orders. An important element of any documentation system is the ability to quickly sort and list variances and open items. To this end, a major advantage of the system used by the team is the ability to speed the flow of information to the project team and the car overhauler. The STV/PB team will use our ProjectSolve 2, web-based system for the control of this project. This allows rapid transfer of files to the project team, as well as the overhaul contractor.

ProjectSolve 2 has the capability of controlling several projects in parallel. It utilizes metadata inputs, has an integrated CAD file reader, calendar, action items list, project team directory and many other built in features to manage the project as well as speed up review and answers to critical project issues. The website is currently utilized on the Greenbush car procurement. It also houses selected files from the three previous MBTA bi-level projects. These files are accessible to all project team members, thereby speeding up the review of similar project documents for the new overhaul program. The net effect of having thousands of documents and records available to all project team members is that this team can get ahead of the learning curve on this project, This saves MBTA time and money.

This easy access to the complete archive of MBTA documentation provides the STV/PB team members a distinct advantage in staying on top of issues, seeking prompt resolution, and keeping the project on schedule.

Progress Payment Verification - With information gathered by monitoring all steps of the procurement process, the STV/PB team will provide recommendations for approval or disapproval of progress payments. Invoiced progress payments will be evaluated against the relevant project status and recommendation for payment forwarded to the MBTA. Inputs to the verification process would include:

- Submittal and approval of management policies and procedures
- Status of drawings
- Procedure or specification submittal and approval
- Status of pending change orders
- Approval of material submittals
- Production progress
- In-Plant testing
- Delivery schedule
- Final acceptance testing

Spare Parts Oversight - Although not as substantial a challenge as it would be in a comprehensive new fleet vehicle procurement, spare parts oversight will still be a part of this overhaul program. Component changes as a result of modifications, upgrades, or retrofits will necessitate evaluation and acquisition of new spare parts. In addition, some parts historically procured for the vehicles may no longer be needed. The STV/PB team will monitor the evaluation, acquisition and delivery of spare parts so that the availability of the overhauled vehicles is not compromised during the acceptance testing and in-service phases of the project. Additionally, the team may recommend parts that are no longer necessary and may be eliminated from the maintenance inventory. STV/PB will monitor the tracking of overall spare parts inventory, ownership and accountability. Typically, these parts are procured by the car overhauler, and part of the bid.

Project Meeting Minutes - Meeting minutes are a dynamic tool for documenting project progress. STV/PB will arrange regular project progress and analysis review meetings, at which the progress of all work will be reviewed with respect to the project and submission schedules. We will prepare and distribute meeting notes and agenda for receipt by all parties prior to the meetings. Minutes of each meeting will be submitted to the MBTA for review and approval within five working days. The minutes will be revised to incorporate MBTA comments, and the final version formally released. The STV/PB correspondence management system will augment meeting minutes with updated action item and engineering issues lists.

Program Quality Coordination - The successful quality activity will be an ongoing effort of our ISO 9001 certified Quality Management System for engineering service projects. All program quality activities will be under the guidance of the Quality Manager and will be subject to annual internal quality audits to ensure maintenance of the high standards of quality required in a properly executed vehicle overhaul program. This is the same system of PB's project specific Project Implementation Plan and Quality Assurance Plan that is currently used on all MBTA Projects. The Plans will be tailored specifically for this project.

Project Implementation Plan and QA Plan - In order for the STV/PB team to facilitate successful project performance, it is necessary to establish, early in project, a clear mutual understanding of the responsibilities of all involved parties. To clearly show how the project will be organized and managed, the team will prepare, for approval by the MBTA, specific procedures that will be utilized for this project and incorporated into a manual to be issued to each project organization.

The Project Implementation and Quality Plans will include procedures which will specify:

- **Organization** - This section of the manual will show a listing of the organizations directly involved in the project, and will depict the responsibilities of the key individuals in each organization.
- **Communications** - The channels for communications, both written and oral will be identified. The methods for submission of technical, administrative data and of engineering drawings will be defined. The responsibilities with respect to correspondence control, approvals, and response to schedules will be established.
- **Quality Assurance** - Lines of communication between Contractor and the STV/PB team will be defined in this section. It will establish procedures to be followed for Quality Assurance Audits, First Article Inspections and Shipping Inspections. Requirements for notification of inspections of materials and reports of shipments are also specified.

Other areas of the manual will discuss the means for initiating, reviewing and accepting/processing change order, payments and procedural as well as contractual changes will be defined. In addition to the above, specific guidelines will be defined which show the methods by which the performance of the team can be confirmed. Milestones will be defined to maintain quality, timeliness and budget.

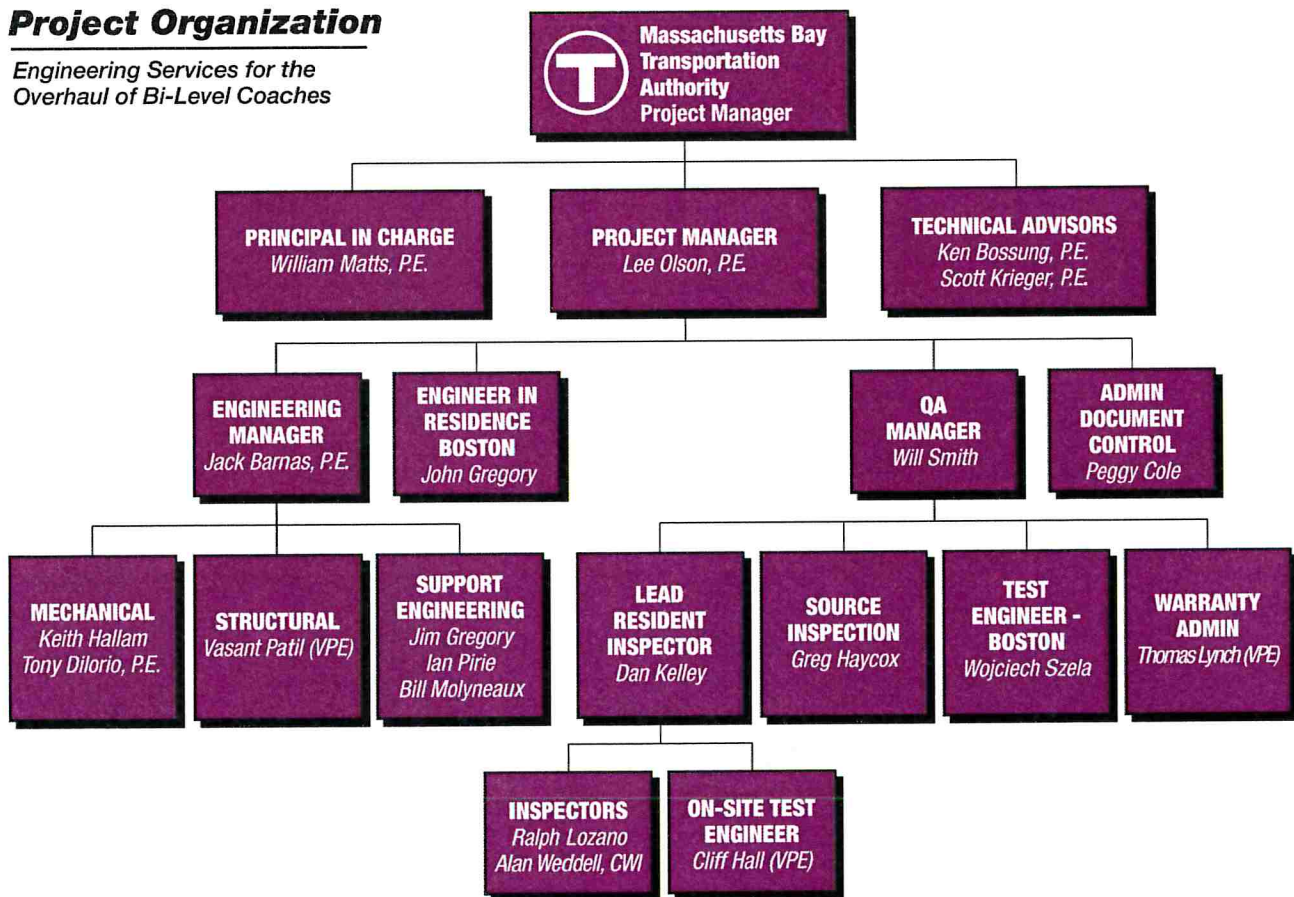
Project Management Plan

The STV/PB Joint Venture combines two of the Nation's foremost firms in rolling stock engineering, inspection, and testing services. STV/PB is committing most experienced and knowledgeable professionals to accomplish the goals of each of the task assignments under this program. STV/PB brings recognized leadership and a successful record in the procurement and overhaul of commuter rail vehicles here with the MBTA and elsewhere around the country. The staff named in the organization chart below are seasoned professionals and have been selected for their special expertise and proven performance record on other similar MBTA projects.

STV/PB is joined by our highly qualified DBE subconsultant VP Engineering, Inc. (720 Glen Royal Drive, Roswell, GA 30076). VPE has provided engineering and inspection services as a subconsultant to STV/PB on several MBTA commuter rail car procurements including the most recent Greenbush Project.

Project Organization

*Engineering Services for the
Overhaul of Bi-Level Coaches*



(VPE) VP Engineering, Inc. - DBE (Subconsultant)

STV/PB staff have an unmatched knowledge of the MBTA's vehicle engineering programs. This knowledge is based on hands-on experience acquired through previous overhaul and procurement programs involving almost every vehicle type in the MBTA's fleet. By assigning key staff from these past programs to the current program, STV/PB can capitalize on the continuity and lessons learned from past experience for the

benefit of the MBTA. The organization chart above identifies the names of the key staff and defines the roles, lines of authority, and responsibilities for each position.

The STV/PB team will continue to operate out of its project office at 321 Summer Street in Boston, MA. STV/PB has successfully been coordinating work for the MBTA's ongoing procurement of bi-level coaches out of this office, providing established lines of communication and close proximity to MBTA offices.

Project Manager, Project Principal and Technical Advisors

Key to the success of any project are the assigned key staff and in particular the qualification, credentials, and track record of the project manager. STV/PB is pleased to designate and commit **Lee Olson, P.E.**, as our project manager. Lee has over 29 years of experience in the overhaul of rail cars and locomotives. His entire career has been in railway rolling stock. Lee is well known to the MBTA, having managed four MBTA railcar programs, including the overhaul of 57 Pullman Coaches which were delivered on time and under budget. He has also managed a similar overhaul program for the Fort Worth Transportation Authority (FWTA) involving the overhaul and upgrade of F59PH diesel-electric locomotives and bi-level commuter coaches. Lee will be the focal point of contact with the MBTA, responsible for planning and coordinating all activities with the MBTA, establishing and monitoring budgetary and schedule baselines, assuring the availability of resources, and providing administrative oversight of the integrated program. Lee is located in Atlanta, but will be in the Boston office as needed or required by the MBTA staff. This arrangement has worked successfully on past MBTA programs, where Lee has performed and delivered high quality and responsiveness to the full satisfaction of the MBTA.

Lee will draw on technical resources, including inspectors, test engineers, vehicle engineers, from a vast resource pool comprised of professionals from all team firms. This will provide the ability to assign the right personnel for the required tasks, and will also help to foster the application of lessons learned across both locomotives and coaches in order to minimize issues of compatibility.

William Matts, P.E., will serve as the Project Principal in Charge. Bill is an Executive Vice President in charge of the Transportation and Infrastructure Division of STV Inc. Bill has served as Principal in Charge on numerous transit projects, including many commuter car and locomotive procurements. Bill is well known to the MBTA, having served as Principal in Charge for STV/PB on the Greenbush Bi-Level Car Procurement, and on other MBTA locomotive projects.

Scott Krieger will serve as a technical adviser to the project. Scott's experience with MBTA and LIRR commuter vehicle procurements and operations will be of value to this effort. He will be available to MBTA on an "as needed" basis.

Ken Bossung - Ken will serve as a technical advisor to the project. Ken's recent work in LIRR implementing a heavy maintenance program for the LIRR's C-3 Kawasaki bi-level coaches. As a technical advisor to this project, Ken will bring his experience and lessons learned on the C-3 heavy maintenance program. The C-3 LIRR bi-level car is similar to the MBTA bi-level car and provides an advance look into what we will experience on the MBTA 75 car bi-level overhaul project. Ken was the program manager for STV on the original procurement of the LIRR C-3 bi-level cars. As such, Ken is intimately familiar with both the Kawasaki carshell design, and the heavy maintenance issues encountered during the C-3 LIRR heavy maintenance program.

Task Managers

The task managers assigned to coordinate the activities of the engineering and inspection staff are among our most senior and experienced managers. Lee will coordinate closely with the task managers, who will organize and oversee a staff of inspectors, test engineers and vehicle engineers in multiple locations.

Will Smith - Our Quality Assurance Manager, Will Smith, will coordinate the quality audit and transient inspection teams. Will was the Quality Assurance Manager when these cars were originally built. Will holds a Level III Nondestructive Testing Certification. He is intimately familiar with methods for radiography of the fabricated truck frame of the Kawasaki cars.

Jack Barnas - Jack Barnas, with extensive experience in railcar design, maintenance and overhaul will lead our engineering team. Jack's overhaul experience includes Caltrain Bi-Level Cars, UTA Single Level and Gallery Cars, Buffalo Light Rail Cars, NYCT R-38 subway cars, Baltimore Heavy Rail Cars and VRE Bi-Level Cars and Locomotives.

John Gregory - John Gregory will fulfill the position of Engineer-in-Residence for this program. In addition to performing mechanical engineering support, John's location at the project office will allow him to provide local support to the MBTA for the duration of this program. John brings 16 years of experience in similar positions, both for carbuilders and for vehicle consultants. John has experience on the Caltrans Commuter Capital Corridor, working for a manufacturer on NJT Commuter DMUs and Commuter locomotive Overhaul for MARC.

Dan Kelley - Dan Kelley will serve as lead resident inspector and also serve as the site manager for the STV/PB team at the overhaul facility. Dan is currently serving as lead resident inspector on the MBTA Blue Line Car Procurement. Dan also has served as lead resident inspector on Hudson Bergen Light Rail Car Procurement.

In addition to inspectors dedicated to particular sub-system suppliers, there will be additional inspectors, designated as transient inspectors, who will conduct inspections and audits of both products and processes at all major subsystem suppliers.

Forming the core of the STV/PB inspection team will be the carbuilder-based quality assurance representatives (QARs) who will monitor final assembly activities at designated plants. This group will be comprised of highly qualified inspectors and test engineers, many of whom have previous experience working for MBTA and other clients.

QARs will coordinate the activities such that each car receives an inspection during the final assembly process. QARs will also audit manufacturing processes, inspect incoming material, track engineering changes, monitor configuration control effectiveness and communicate on a regular basis to the other field sites and the project management team. The test engineers will focus on monitoring the activities of the carbuilder test technicians, the review of conformance test procedures, witnessing production conformance testing, making sure that testing is performed according to the test plan and in the proper sequence. They will also audit the test reports and records.

Key Staff Availability

STV/PB performed a detailed analysis of the current commitments of our key personnel to existing rolling stock procurements and determined that the new work represented by this contract will dovetail with our

current assignments. The chart below shows the availability, current commitments, and locations of key personnel and provides the names and locations of backups for these individuals, should the need arise.

Key Staff	Project Role	Availability	Participation	Location	Backup	Backup Location
L. Olson	Project Manager	90%	90%	Atlanta	J. Barnas	Philadelphia
W. Smith	Quality Manager	75%	75%	Atlanta	G. Haycox	Pittsburgh
J. Barnas	Engineering Manager	65%	60%	Philadelphia	C. Thornes	Newark
J. Gregory	Resident Engineer	75%	75%	Boston	B. Trembath	Boston
D. Kelley	Lead Resident Inspector	100%	100%	On-Site	D. King	On-Site

Cost and Schedule Control

As project manager, Lee will be accountable for technical, cost, schedule and quality performance, using established systems for reporting information to closely track both labor costs and direct expenses on a bi-weekly basis. This information will be entered into a spreadsheet program that will provide a monthly report of amounts spent compared to budgets. Included with the monthly report will be a listing of action items, if appropriate, that need to be addressed to maintain costs within budget.

Meeting the scheduled delivery requires consistent monitoring of the builders CPM charts and Master Program Schedule. STV/PB will validate and monitor all tasks and milestones to ascertain the actual status of the project. Should recovery scenarios appear necessary, our thorough background and experience will enable us to recommend the appropriate course of action needed to recover schedule.

Document Control

Timely and accurate monitoring and maintaining of all documents are imperative if the project is to proceed on schedule and with a minimum number of change orders. In fact, an important element of any documentation system is the ability to quickly sort and list variances and open items. To this end, a major advantage of the systems used by STV/PB is the ability to speed the flow of information to the project team and the car overhauler. STV/PB will use our tested ProjectSolve 2 web-based system for maintaining and retrieving all documents, including all correspondence, directives and drawings received and transmitted. This system allows rapid transfer of files to the project team, the MBTA, and the overhauler. This easy access to the complete archive of MBTA documentation provides the STV/PB team a distinct advantage in staying on top of issues, seeking prompt resolution, and keeping the project on schedule.


















Project Schedule

The schedule shown below assumes that the car overhauler will be in North America. It may be as long as 18 months between the first car arriving at the overhauler's facility until its arrival back in Boston. After production hits its pace, we would anticipate as many as four cars a month could be overhauled, so the production cycle could be as long as 36 months. At least four cars will need to be at the overhaul facility at one time, with other float available for cars en route to and from the overhaul site. A pool of

subsystem components will be purchased as part of the bid, so as to allow a float of subsystems of more than four carsets of material.

Project Schedule

*Engineering Services for the
Overhaul of Bi-Level Coaches*

TASK	Year 1	Year 2	Year 3	Year 4	Year 5	Year 7
Condition Assessment						
Write Scope						
Bid Support						
Negotiate with Carbuilder						
NTP to Carbuilder						
Ship Cars Off Site						
Strip Cars						
Subsystem Overhauls						
Car Overhaul						
First Cars Back to Boston						
Testing of First Cars						
Car Delivery to Boston						
Ongoing Testing in Boston						
Warranty						
Car Acceptance						

Managing Subconsultants

STV/PB is joined by one subconsultant, VP Engineering, Inc. STV/PB will review adherence to schedules, budgets, and quality guidelines of all work performed by VPE and ascertain that the services provided by VPE have adequate QA/QC policies and procedures in place. STV/PB will regularly monitor assignments so that any variances can be identified early on and any adjustments made before they can impact the project cost or schedule. VPE has worked with STV/PB on numerous MBTA vehicle and other engineering service contracts.

Estimated Level of Effort and Cost

LABOR HOURS BY JOB CLASSIFICATION

	Office	Field	Total
Inspection and Specification Preparation	8,052	0	8,052
Design Review	21,128	0	21,128
In-Plant Inspection	482	3,592	4,074
Testing Supervision	1,476	6,184	7,660
On-Site Vehicle Inspection	0	9,216	9,216
Follow-Up Supervision	4,538	4,618	9,156
Administrative	3,984	0	3,984
TOTAL HOURS	39,660	23,610	63,270

ESTIMATED LABOR COSTS

STV/PB A JOINT VENTURE

	Office	Field	Total
Direct Labor	1,895,607	689,978	2,585,585
Indirect Cost	2,712,142	745,181	3,457,323
Fixed Fee	0	0	667,220
TOTAL ESTIMATED STV/PB	4,607,749	1,435,159	\$6,710,128

ESTIMATED LABOR COSTS

VP ENGINEERING, INC. (VP)

	Office	Field	Total
Direct Labor	180,000	412,736	592,736
Indirect Cost	180,000	412,736	592,736
Fixed Fee	0	0	118,547
TOTAL VPE	360,000	825,472	1,304,019

TOTAL ESTIMATED LABOR COSTS	4,967,749	2,260,631	\$8,014,147
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ANTICIPATED EXPENSES

	STV/PB	VPE	Total
Transportation	230,023	13,818	243,841
Subsistence	441,496	32,520	474,016
Materials and Supplies	26,600	10,800	37,400
Communications	22,200	2,190	24,390
Miscellaneous	10,000	4,000	14,000
TOTAL ANTICIPATED EXPENSES	730,319	63,328	\$793,647

TOTAL ESTIMATED COSTS

\$8,807,794

The estimated costs above assume an escalation rate of 4% over the duration of the project.

Please also note that the bulk of the labor effort on this project occurs from 18 to 48 months after NTP. The \$45.00 per hour cap has been in effect for five years. The large majority of our engineers and inspectors are at or near the cap now, and many will exceed the \$45.00 per hour cap within the time span

noted above. Therefore, STV/PB requests MBTA's consideration that the \$45.00 cap be increased or that we be able to negotiate an increase in our billing rate with MBTA if the cap is increased within the time period of the contract.

Conclusion

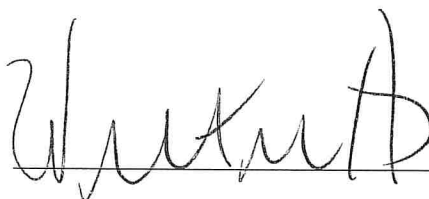
STV/PB is committing a most experienced and knowledgeable team to accomplish the goals of each task assignment issued under this program. We bring proven leadership, proven experience, and a tried-and-true approach that has been successfully employed on overhauls of commuter rail cars for MBTA and other properties in the past, along with the ability to use technology that is both creative and complementary to the MBTA. As two of the Nation's foremost firms in rolling stock engineering services and a known provider of quality engineering services for MBTA's rolling stock needs, STV/PB looks forward to continuing our successful and productive relationship with the MBTA on this important project.

Appendix 1 Required Forms

**ATTACHMENT A
CONFLICT OF INTEREST
DISCLOSURE STATEMENT**

STV Incorporated certifies that it has no real or perceived conflict of interest in relation to services of the MBTA contract agreement for MBTA Contract No. V61PS02 – Engineering Services for the Mid-Life Overhaul of Bi-Level Coaches and furthermore to take any action or supply any information necessary should a conflict of interest arise.

Authorized Signature:

A handwritten signature in black ink, appearing to read 'William F. Matts', written over a horizontal line.

Title or Position:

William F. Matts, PE, Executive Vice President

Date:

November 3, 2006

ATTACHMENT G
GOVERNMENT-WIDE DEBARMENT
AND SUSPENSION

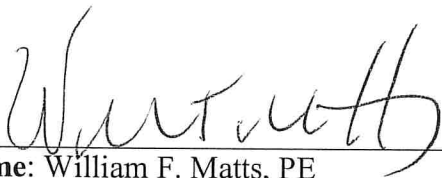
By signing and submitting this bid or proposal, the prospective lower tier participant is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Authority may pursue available remedies, including suspension and/or debarment.
2. The prospective lower tier participant shall provide immediate written notice to the Authority if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact the Authority for assistance in obtaining a copy of those regulations.
4. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Authority.
5. The prospective lower tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.
7. Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
8. Except for transactions authorized under Paragraph 4 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, the Authority may pursue available remedies including suspension and/or debarment.

**“Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transaction”**

The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its “principals” [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

When the prospective lower tier participant is unable to certify to the statements in this certification, such prospective participant shall attach an explanation to this proposal.



Name: William F. Matts, PE
Executive Vice President

STV Incorporated

Firm

November 3, 2006

Date

ATTACHMENT H
CERTIFICATION OF RESTRICTIONS ON LOBBYING
APPENDIX A, 49 CFR PART 20—CERTIFICATION REGARDING LOBBYING

The undersigned [Engineer] certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.


(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, *et seq.*)]

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352 (c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

The Engineer, STV Incorporated, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Engineer understands and agrees that the provisions of 31 U.S.C. A 3801, *et seq.*, apply to this certification and disclosure, if any.



Signature of Engineer's Authorized Official

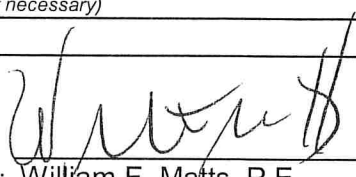
William F. Matts, PE
Executive Vice President

Name and Title of Engineer's Authorized Official

November 3, 2006

Date

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(see reverse for public burden disclosure)

1. Type of Federal Action: <div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin-bottom: 5px;">A</div> a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance		2. Status of Federal Action: <div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin-bottom: 5px;">A</div> a. bid/offer/application b. initial award c. post-award		3. Report Type: <div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin-bottom: 5px;">A</div> a. initial filing b. material change For Material Change Only: year _____ quarter _____ date of last report _____	
4. Name and Address of Reporting Entity: <input checked="" type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if known STV Incorporated 321 Summer Street, 7th Floor Boston, MA 02210-1725 Congressional District, if known :			5. If Reporting entity in No. 4 in subawardee, Enter Name and Address of Prime: Congressional District, if known :		
6. Federal Department/Agency: FTA			7. Federal Program Name/Description: CFDA Number, if applicable _____		
8. Federal Action Number, if known:			9. Award Amount, if known: \$		
10. a. Name and Address of Lobbying Entity (if individual, last name, first name, MI): Various Local and State Professional Societies			b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI):		
<i>(Attach Continuation Sheet(s) SF-LLL-A, if necessary)</i>					
11. Amount of Payment (check all that apply): \$ _____ <input type="checkbox"/> actual <input type="checkbox"/> planned			13. Type of Payment (check all that apply): <input type="checkbox"/> a. retainer <input type="checkbox"/> b. one-time fee <input type="checkbox"/> c. commission <input type="checkbox"/> d. contingent fee <input type="checkbox"/> e. deferred <input checked="" type="checkbox"/> f. other, specify: Dues		
12. Form of Payment (check all that apply): <input checked="" type="checkbox"/> a. cash <input type="checkbox"/> b. in-kind: specify: nature _____ value _____					
14. Brief Description of Services Performed or to be Performed and Data(s) of Service, including officer(s), employee(s), or Member(s) contacted, for Payment indicated in Item 11: A portion of the dues paid to various local and state professional societies are attributable to lobbying activities conducted by the societies. <div style="text-align: right;"><i>(Attach Continuation Sheet(s) SF-LLL-A, if necessary)</i></div>					
15. Continuation Sheet(s) SF-LLL-A attached: <input type="checkbox"/> yes <input checked="" type="checkbox"/> No					
16. Information requested through this form is authorized by title 31 U.S.C., section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.			Signature:  Print Name: William F. Matts, P.E. Title: Executive Vice President Telephone No.: 617-482-7298 Date: 11/3/2006		

Federal Use Only

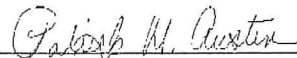
Authorized for Local Reproduction
Standard Form - LLL (Rev. 7-97)

ATTACHMENT I
CERTIFICATION OF COMPLIANCE
CHILD CARE
REGULATION 102 CMR 12.00

The undersigned hereby certifies that, if awarded this contract, he/she will comply, to the extent required by law, with Section 7 of Massachusetts General Law, Chapter 521 of the Acts of 1990, as amended by Chapter 329 of the Acts of 1991 and the Massachusetts Executive Office of Health and Human Services – Office of Children – Regulation 102 CMR 12.00.

Signature

Authorized Representative


Patrick M. Austin

Position:

Director, Human Resources

Company Name:

STV Incorporated

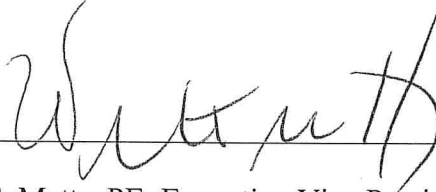
Date:

November 3, 2006

ATTACHMENT J
AFFIDAVIT OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or organization, entity, or group of individuals.

Signature: _____



Position: _____

William F. Matts, PE, Executive Vice President

Company Name: _____

STV Incorporated

Date: _____

November 3, 2006

ATTACHMENT K **FINANCIAL RESPONSIBILITY QUESTIONNAIRE**

Paragraph 7.(h) of the Federal Transit Administration Circular 4220.1D requires the MBTA to determine consultants' financial responsibility prior to awarding a contract. In consideration of this requirement, please complete the form below:

Please attach this form certified financial statements for the last three fiscal years. If certified financial statements are not available, provide financial statements sworn to by the firm's Chief Financial Officer.

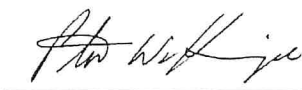
The undersigned hereby certifies under penalty of perjury that to the best of his/her knowledge, the following information is true and accurate.

Current Ratio:	<u>71,433</u>	<u>43,384</u>	=	<u>1.7/1.0</u>
	Current Assets	Current Liabilities		

Return on Assets:				
Year 1: 2003	<u>5,456</u>	<u>74,812</u>	=	<u>7.3%</u>
	Operating Income	Total Assets		
Year 2: 2004	<u>2,272</u>	<u>76,198</u>	=	<u>3.0%</u>
	Operating Income	Total Assets		
Year 3: 2005	<u>(995)</u>	<u>76,589</u>	=	<u>(1.3%)</u>
	Operating Income	Total Assets		

Operating Profit:				
Year 1: 2003	<u>5,456</u>	<u>138,320</u>	=	<u>5.7%</u>
	Operating Income	Net Revenue		
Year 2: 2004	<u>2,272</u>	<u>132,175</u>	=	<u>1.7%</u>
	Operating Income	Net Revenue		
Year 3: 2005	<u>(995)</u>	<u>136,850</u>	=	<u>(0.7%)</u>
	Operating Income	Net Revenue		

Return on Equity				
Year 1: 2003	<u>4,215</u>	<u>16,406</u>	=	<u>25.7%</u>
	Operating Income (Equity)	Total Net Assets		
Year 2: 2004	<u>1,626</u>	<u>18,279</u>	=	<u>9.0%</u>
	Operating Income (Equity)	Total Net Assets		
Year 3: 2005	<u>2,824</u>	<u>21,253</u>	=	<u>13.3%</u>
	Operating Income (Equity)	Total Net Assets		



Authorized Signature

Chief Financial Officer

Title

November 3, 2006

Date

STV GROUP, INCORPORATED

Consolidated Financial Statements

Year Ended September 30, 2005

This document contains confidential business data that should not be released to any party without prior written consent.



Report of Independent Auditors

Stockholder and Board of Directors

STV Group, Incorporated

We have audited the accompanying consolidated balance sheet of STV Group, Incorporated, as of September 30, 2005, and the related consolidated statements of operations, stockholder's equity, and cash flows for the year then ended. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audit. The consolidated balance sheet of STV Group, Incorporated as of September 30, 2004 and the related consolidated statements of operations, stockholder's equity, and cash flows for each of the years ended September 30, 2004 and 2003 were audited by other auditors whose report dated November 11, 2004 expressed an unqualified opinion on those consolidated financial statements.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall consolidated financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of STV Group, Incorporated as of September 30, 2005 and the consolidated results of its operations and its cash flows for the year then ended, in conformity with accounting principles generally accepted in the United States of America.

Grassi & Co., CPAs, P.C.

GRASSI & CO., CPAs, P.C.

Lake Success, New York
November 18, 2005

HEADQUARTERS:

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Lake Success, New York 11042
(516) 256-3500 • Fax (516) 256-3510

OTHER OFFICES:

New York City: (646) 273-1300
Westchester: (914) 423-7120
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Consolidated Balance Sheets

STV Group, Incorporated

	September 30	
	2005	2004
Assets		
Current Assets:		
Cash and cash equivalents	\$ 45,000	\$ 178,000
Accounts receivable, net of allowance for doubtful accounts of \$0	46,840,000	45,638,000
Costs and estimated profits of uncompleted contracts in excess of related billings	22,556,000	23,007,000
Prepaid expenses and other current assets	1,992,000	2,417,000
Prepaid income taxes	0	94,000
Total Current Assets	71,433,000	71,334,000
Property and equipment, net	1,024,000	1,311,000
Deferred income taxes	555,000	537,000
Other assets	3,577,000	3,016,000
Total Assets	\$ 76,589,000	\$ 76,198,000
Liabilities and Stockholder's Equity		
Current Liabilities:		
Revolving line of credit	\$ 0	\$ 1,700,000
Current portion of long-term debt	2,209,000	4,495,000
Accounts payable	13,080,000	14,062,000
Billings on uncompleted contracts in excess of related costs and estimated profits	9,748,000	8,338,000
Accrued payroll and related expenses	11,745,000	9,946,000
Accrued expenses	5,671,000	3,648,000
Deferred compensation	218,000	391,000
Deferred income taxes	588,000	779,000
Income taxes payable	125,000	0
Total Current Liabilities	43,384,000	43,359,000
Deferred compensation	4,149,000	3,246,000
Long-term debt, less current portion	5,200,000	8,961,000
Postretirement benefits	2,600,000	2,200,000
Interest rate swap agreement	3,000	153,000
Total Liabilities	55,336,000	57,919,000
Stockholder's Equity:		
Common stock, par \$.01, authorized 5,000,000 shares	24,000	24,000
Capital in excess of par	3,228,000	3,228,000
Retained earnings	18,004,000	15,180,000
Accumulated other comprehensive loss	(3,000)	(153,000)
Total Stockholder's Equity	21,253,000	18,279,000
Total Liabilities and Stockholder's Equity	\$ 76,589,000	\$ 76,198,000

See notes to consolidated financial statements.

Consolidated Statements of Operations

STV Group, Incorporated

	For the Fiscal Year Ended September 30		
	2005	2004	2003
Total revenues	\$ 215,914,000	\$ 197,694,000	\$ 224,384,000
Subcontract and procurement	<u>79,064,000</u>	<u>65,519,000</u>	<u>86,064,000</u>
Operating revenue	136,850,000	132,175,000	138,320,000
Costs and expenses:			
Costs of services	120,363,000	114,137,000	117,994,000
General and administrative	<u>17,482,000</u>	<u>15,766,000</u>	<u>14,870,000</u>
Total costs and expenses	137,845,000	129,903,000	132,864,000
Operating income (loss)	(995,000)	2,272,000	5,456,000
Interest expense	(716,000)	(862,000)	(1,093,000)
Interest income	2,473,000	20,000	117,000
Miscellaneous income, net	<u>2,272,000</u>	<u>51,000</u>	<u>82,000</u>
Other income (expense), net	4,029,000	(791,000)	(894,000)
Income before income taxes	3,034,000	1,481,000	4,562,000
Income tax (benefit) expense	<u>210,000</u>	<u>(145,000)</u>	<u>347,000</u>
Net income	\$ 2,824,000	\$ 1,626,000	\$ 4,215,000

See notes to consolidated financial statements.

Consolidated Statements of Stockholder's Equity

STV Group, Incorporated

	Common Stock		Capital in excess of par	Retained earnings	Accumulated other comprehensive loss	Total Stockholder's Equity
	Number of shares	Amount				
Balance, September 30, 2002	2,385,052	\$ 24,000	\$ 3,228,000	\$ 9,339,000	\$ (474,000)	\$ 12,117,000
Net income for the year				4,215,000		4,215,000
Unrealized gain on interest rate swap agreement					74,000	74,000
Comprehensive income						4,289,000
Balance, September 30, 2003	2,385,052	\$ 24,000	\$ 3,228,000	\$ 13,554,000	\$ (400,000)	\$ 16,406,000
Net income for year				1,626,000		1,626,000
Unrealized gain on interest rate swap agreement					247,000	247,000
Comprehensive income						1,873,000
Balance, September 30, 2004	2,385,052	\$ 24,000	\$ 3,228,000	\$ 15,180,000	\$ (153,000)	\$ 18,279,000
Net income for year				2,824,000		2,824,000
Unrealized gain on interest rate swap agreement					150,000	150,000
Comprehensive income						2,974,000
Balance, September 30, 2005	2,385,052	\$ 24,000	\$ 3,228,000	\$ 18,004,000	\$ (3,000)	\$ 21,253,000

See notes to consolidated financial statements.

Consolidated Statements of Cash Flows
STV Group, Incorporated

	For the Fiscal Year Ended September 30		
	2005	2004	2003
Operating Activities			
Net income	\$ 2,824,000	\$ 1,626,000	\$ 4,215,000
Adjustments to reconcile net income to net cash provided by (used in) operating activities:			
Depreciation and amortization	784,000	1,159,000	1,470,000
Deferred income taxes	(209,000)	(342,000)	(476,000)
Stock appreciation rights	355,000	251,000	278,000
Loss (gain) on disposal of land, property and equipment	7,000	12,000	(67,000)
Changes in operating assets and liabilities:			
Accounts receivable	(1,202,000)	1,601,000	2,423,000
Costs and estimated profits of uncompleted contracts in excess of related billings	451,000	(4,267,000)	(2,568,000)
Other current and non-current assets	875,000	(69,000)	(896,000)
Accounts payable and other liabilities	3,616,000	1,033,000	(2,579,000)
Billings on uncompleted contracts in excess of related costs and estimated profits	1,409,000	194,000	(2,833,000)
Current income taxes	<u>219,000</u>	<u>(94,000)</u>	<u>(296,000)</u>
Net cash provided by (used in) operating activities	\$ 9,129,000	\$ 1,104,000	\$ (1,329,000)
Investing Activities			
Proceeds from sale of land	\$ 0	\$ 0	\$ 124,000
Purchase of property and equipment	(312,000)	(210,000)	(368,000)
Purchase of software	<u>(94,000)</u>	<u>(75,000)</u>	<u>(182,000)</u>
Net cash used in investing activities	\$ (406,000)	\$ (285,000)	\$ (426,000)
Financing Activities			
Proceeds from line of credit	\$ 38,334,000	\$ 11,600,000	\$ 0
Principal payments on line of credit and long-term borrowings	<u>(47,190,000)</u>	<u>(14,387,000)</u>	<u>(5,544,000)</u>
Net cash used in financing activities	\$ (8,856,000)	\$ (2,787,000)	\$ (5,544,000)
Decrease in cash	(133,000)	(1,968,000)	(7,299,000)
Cash and cash equivalents at beginning of year	<u>178,000</u>	<u>2,146,000</u>	<u>9,445,000</u>
Cash and cash equivalents at end of year	\$ 45,000	\$ 178,000	\$ 2,146,000

See notes to consolidated financial statements.

Notes to Consolidated Financial Statements
STV Group, Incorporated

1. Significant Accounting Policies

Basis of Presentation

STV Group, Incorporated, (STV or the Company) and its subsidiaries specialize in consulting engineering, architectural, planning, environmental, construction management and related services. The Company's clients consist primarily of various federal, state and local governmental agencies, with an increasing presence in the private sector in geographic regions throughout the United States. The Company's contracts can range from only a few weeks to multi-year, long-term assignments.

STV is a wholly-owned subsidiary of the STV Employee Stock Ownership Plan (ESOP).

Principles of Consolidation

The consolidated financial statements include the accounts of STV and its subsidiaries. Such accounts include the Company's proportional share of assets, liabilities, revenue and expenses related to its participation in existing joint ventures. All significant intercompany transactions and balances have been eliminated.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

Revenue Recognition and Concentration of Credit Risk

STV uses the percentage-of-completion method of accounting for contract revenues. Progress toward completion is measured on a contract-by-contract basis using direct labor costs incurred to date as compared with estimated total labor costs at completion. The asset, "cost and estimated profits of uncompleted contracts in excess of related billings," represents revenues recognized in excess of amounts billed. The liability, "billings on uncompleted contracts in excess of related costs and estimated profits," represents billings in excess of revenues recognized. Significant changes in contract terms affecting the estimated revenue amounts and related billings are recorded and recognized in the period in which the revisions are determined. Revenues on subcontract and procurement costs or pass-through costs are recognized at the time the costs are incurred and recorded against the projects.

In the normal course of its business and consistent with industry practices, the Company grants credit to its clients without requiring collateral. Concentrations of credit risk relative to trade receivables are limited due to the Company's client base. The Company evaluates the past due status of its trade receivables based on contractual terms.

Fair Value of Financial Instruments

STV's financial instruments consist primarily of cash and cash equivalents, trade receivables, investments in U.S. treasury bills, trade payables, long-term debt and an interest rate swap agreement. Cash and cash equivalents include all highly liquid investments with maturities of three months or less when purchased. The interest rate swap agreement is recorded at fair value. The carrying amount of the Company's long-term debt and revolving credit facility approximates fair value because the interest rates are based upon variable reference rates. The book values of the remaining financial instruments approximate their respective fair values because of the short-term maturities of these instruments.

Depreciation and Amortization

Depreciation and amortization is computed primarily on the straight-line method over the estimated useful lives of the assets ranging from three to seven years, or the life of the lease. Purchased software, included in other assets, is amortized over an estimated useful life of three years.

Reclassifications

In fiscal 2004, the Company has classified costs related to its information technology systems as general and administrative expenses. Previously such costs were included in costs of services. The Company has reclassified \$5,102,000 in 2003 to conform to the 2004 presentation.

2. Concentration of Credit Risk

The Company maintains cash balances in several financial institutions. The balances are insured by the Federal Deposit Insurance Corporation up to \$100,000. From time to time, the Company's balance may exceed these limits. At September 30, 2005, uninsured cash balances were approximately \$2,330,000. The Company believes it is not exposed to any significant credit risk for cash.

3. Accounts Receivable

Included in accounts receivable are retainages related to uncompleted contracts in the amounts of \$7,822,000 and \$7,946,000 at September 30, 2005, and 2004, respectively. The retention will be collected within the life cycle of the contracts.

4. Costs and Estimated Profits of Uncompleted Contracts

Costs and estimated profits of uncompleted contracts at September 30, 2005, and 2004, respectively, are as follows:

	2005	2004
Costs and estimated profits of uncompleted contracts	\$ 947,156,000	\$ 869,398,000
Less billings to date	<u>934,348,000</u>	<u>854,729,000</u>
	\$ 12,808,000	\$ 14,669,000

Costs and estimated profits of uncompleted contracts are included in the accompanying consolidated balance sheets under the following captions:

	2005	2004
Costs and estimated profits of uncompleted contracts in excess of related billings	\$ 22,556,000	\$ 23,007,000
Billings on uncompleted contracts in excess of related costs and estimated profits	<u>(9,748,000)</u>	<u>(8,338,000)</u>
	\$ 12,808,000	\$ 14,669,000

5. Property and Equipment

Property and equipment, at cost, are as follows:

	2005	2004
Equipment	\$ 3,905,000	\$ 3,658,000
Furniture and fixtures	3,508,000	3,477,000
Leasehold improvements	<u>2,375,000</u>	<u>2,365,000</u>
	9,788,000	9,500,000
Less:		
Accumulated depreciation and amortization	<u>8,764,000</u>	<u>8,189,000</u>
	\$ 1,024,000	\$ 1,311,000

The depreciation expense relating to property and equipment was \$591,000 and \$880,000 in 2005 and 2004, respectively.

6. Long-term Debt

The Company has a Loan and Security Agreement consisting of an \$8,000,000 term loan and a \$13,000,000 revolving line of credit. The revolving credit facility expires October 31, 2007, and includes a \$4,000,000 subfacility for the issuance of standby letters of credit. Effective September 30, 2005, the revolving credit facility was amended to increase the subfacility for issuance of standby letters of credit to \$5,200,000. Outstanding on the line of credit as of September 30, 2005 and 2004 was \$0 and \$1,700,000, respectively. Outstanding letters of credit as of September 30, 2005 and 2004 were \$2,082,000 and \$2,051,000, respectively. The term loan is payable in quarterly principal installments of \$400,000 through October 2009. The term loan is subject to mandatory prepayments upon sales of assets and property outside of the ordinary course of business, the issuance of additional equity interests in STV or any of its subsidiaries, and the receipt of certain extraordinary payments. The loans are secured by the Company's assets.

At the option of STV, the revolver and approximately half of the term loan may bear interest at either rates based upon the 90-day London Interbank Offered Rate ("LIBOR") or the bank's prime rate plus an applicable margin based on the ratio of total funded debt to earnings before interest, taxes, depreciation and amortization. Interest on the remaining half of the term loan is covered under an interest swap agreement as discussed in Note 7. A commitment fee is due based on the average unused portion of the revolving line of credit. Such commitment fee will range from .25 percent to .5 percent per annum based on the same ratio set forth above. A fee will also be paid based on letters of credit outstanding, payable quarterly in an amount equal to 1.25 per cent per annum.

The Loan and Security Agreement contains financial and other restrictive covenants including restrictions on payments of dividends, and compliance with minimum consolidated capital funds, interest expense coverage ratio, fixed charge coverage ratio, and maximum funded debt to consolidated earnings before interest, taxes, depreciation and amortization.

Long-term debt consists of the following:

	2005	2004
Term loan payable in quarterly principal installments of \$400,000, plus mandatory prepayments, if applicable, with remaining principal due October 1, 2009, (interest rate of 5.4% and 3.4% at September 30, 2005, and 2004, respectively)	\$ 6,800,000	\$ 12,817,000
Other, payable in monthly installments of \$108,000, including interest, through April 2005	<u>609,000</u>	<u>639,000</u>
	7,409,000	13,456,000
Less: Current portion	<u>2,209,000</u>	<u>4,495,000</u>
	\$ 5,200,000	\$ 8,961,000

Interest paid during 2005, 2004 and 2003 totaled \$709,000, \$916,000 and \$1,164,000 respectively.

Annual maturities of long-term debt, are as follows:

	Year ending September 30
2006	\$ 2,209,000
2007	1,600,000
2008	1,600,000
2009	1,600,000
2010	400,000

7. Derivative Financial Instruments

The Company accounts for its derivative financial instruments in accordance with SFAS No. 149, "Amendment of Statement 133 on Derivative Instruments and Hedging Activities." This standard requires that all derivative financial instruments, such as interest rate swap agreements, be recognized in the financial statements and measured at fair value. The Company does not hold or issue derivative financial instruments for trading or speculative purposes.

As required by the Company's term loan, the Company entered into an interest rate swap agreement on November 30, 2001, that effectively converts a portion of its floating rate debt to a fixed rate. Under the interest rate swap agreement, the Company pays an amount equal to the specified fixed-rate of interest of 4.43 percent on the notional principal amount, adjusted quarterly, through October 1, 2006, and receives a variable rate of interest equal to the three-month LIBOR on the same notional principal amount (\$4,853,000 at September 30, 2005). No other cash payments are made unless the contract is terminated prior to maturity. As of September 30, 2005, the Company has recorded a long-term liability and accumulated other comprehensive loss of \$3,000 that represents the fair value of the interest rate swap agreement.

8. Income Taxes

Effective October 1, 2001, the Company elected to be taxed as an S Corporation for federal and certain state income tax purposes. Accordingly, the stockholder assumed the obligations and benefits relative to the federal and applicable state income taxes attributable to the Company's operations. The Company may incur certain tax liabilities related to "built-in gains" that were present as of the election date and has recorded a liability for such contingency. Deferred taxes have been adjusted to reflect the impact of the S Corporation election on October 1, 2001. The impact was an increase in the results of operations in fiscal 2004 and increased stockholder's equity of \$225,000.

Income tax expense (benefit) consists of the following:

	2005	2004	2003
Current:			
Federal	\$ 0	\$ 0	\$ 349,000
State and local	419,000	197,000	474,000
Total current	\$ 419,000	\$ 197,000	\$ 823,000
Deferred:			
Federal	\$ 0	\$ (225,000)	\$ (349,000)
State and local	(209,000)	(117,000)	(127,000)
Total deferred	\$ (209,000)	\$ (342,000)	\$ (476,000)
Total income tax (benefit) expense	\$ 210,000	\$ (145,000)	\$ 347,000

Income tax expense in 2005 and 2003 relates to certain states that do not recognize S Corporation status. The income tax benefit in 2004 is the result of the reversal of certain net deferred tax liabilities of approximately \$225,000, offset by state income taxes.

Temporary differences between financial statement and tax reporting that give rise to significant portions of the deferred tax assets consist primarily of certain accruals, which are not currently deductible for tax purposes, and state net operating loss carryforwards. Temporary differences between financial statement and tax reporting that give rise to significant portions of the deferred tax liabilities consist primarily of retainages in accounts receivable.

A summary of deferred tax assets and liabilities is as follows:

	2005	2004
Total deferred tax assets	\$ 1,741,000	\$ 1,585,000
Total deferred tax liabilities	(888,000)	(941,000)
Valuation allowance	(886,000)	(886,000)
Net deferred tax liability	\$ (33,000)	\$ (242,000)

As of September 30, 2005, the Company has net operating loss carryforwards in certain jurisdictions of approximately \$9,100,000 for income tax purposes that expire in various years through 2011. A valuation allowance has been established at September 30, 2005 and 2004 as it is most likely that these carryforward benefits will not be realized due to the Company's S Corporation status.

STV made income tax payments of \$209,000, \$320,000 and \$1,154,000 in 2005, 2004 and 2003, respectively. The Company received \$9,000, \$29,000 and \$35,000 in income tax refunds in 2005, 2004 and 2003, respectively.

9. Commitments and Contingencies

STV is involved in various legal proceedings arising in the ordinary course of business. The Company's management believes that the final resolution of its litigation matters will not have a material adverse effect on STV's consolidated financial statements.

The Company had a funded indemnity professional liability insurance program that had one action pending at the beginning of fiscal 2005. This was a garnishment proceeding seeking enforcement of an approximate \$4,000,000 judgment entered in New York against an entity whose assets and liabilities were partially acquired by the Company in 1987. In early fiscal 2005, the appellate court found that the professional liability insurer had no liability for this claim and the plaintiff/creditor did not make any further appeals.

As this was the last claim pending against this policy, the professional liability insurer has returned the funded portion of the insurance program and the Company has included those amounts as interest income and miscellaneous income, as appropriate, on the consolidated financial statements.

The Company is a minority partner in a joint venture which was formed for purposes of contractual performance. The contract has been terminated for cause by the project owner. The project owner subsequently entered suit against the joint venture and has refused to make remaining payments under the existing contractual obligation, of which the Company's share includes unbilled receivables of approximately \$1,700,000 for which the Company has fully reserved as uncollectible in fiscal year 2005. Such matter is insured under the Company's professional liability insurance policy. The joint venture is vigorously contesting the termination and other allegations in the lawsuit.

In the normal course of business, the Company is subject to certain contractual guarantees. Generally, such guarantees relate to project schedules and performance. The Company's management believes that such guarantees should not have a material adverse effect on the consolidated financial statements.

STV has noncancellable lease agreements for the use of office space and equipment. These agreements expire on varying dates and in some instances contain renewal options. In addition to the base rental costs, occupancy lease agreements generally provide for rent escalations resulting from increased assessments for real estate taxes and other charges. Future minimum lease payments under noncancellable leases with remaining terms of more than one year are due as follows:

Operating Leases	
2006	\$ 7,864,000
2007	6,917,000
2008	5,706,000
2009	5,376,000
2010	4,992,000
Thereafter	17,835,000
Total minimum lease payments	\$ 48,690,000

Rental expense under operating leases amounted to \$7,820,000, \$7,152,000 and \$6,973,000 in 2005, 2004 and 2003, respectively.

10. Stock Plans

On October 1, 1981, STV initiated an Employee Stock Ownership Plan (ESOP) that covers substantially all of its employees. Contributions to the plan are based on a percentage of eligible salaries. Expense for the years 2005, 2004 and 2003 was \$3,228,000, \$3,042,000 and \$3,395,000, respectively. The expense for 2005, 2004 and 2003 includes \$0, \$608,000 and \$677,000 of 401K employer match that was converted to the ESOP at the discretion of the Board of Directors. The liability is funded through either the issuance of shares of Company stock (at fair market value on date of issuance) upon approval of the trustee or a cash payment. The Company will fund the 2005 contribution with cash payments throughout calendar years 2005 and 2006. At September 30, 2005, each share held by the ESOP is valued at \$14.10.

The Compensation Committee of the Board of Directors approved a Stock Appreciation Rights Plan (the SAR Plan) effective October 1, 2002. The SAR Plan is administered by the Compensation Committee. Participants in the SAR Plan are granted units where each unit shall be deemed to be equivalent in value to one share of the Company's common stock. The maximum number of units that may be granted under the SAR plan is 477,010. The units vest three years from the date of grant. For the years ended September 30, 2005 and 2004, the Company recognized expense related to the SAR Plan of \$297,000 and \$251,000, respectively.

The following table summarizes the Company's SAR Plan activity:

	2005		2004	
	Number of SARs	Weighted Average Value on Date of Grant	Number of SARs	Weighted Average Value on Date of Grant
Outstanding at beginning of year	245,000	\$ -	238,000	\$ -
Granted	130,000	12.90	18,000	12.80
Forfeited	(5,000)	10.83	(11,000)	10.83
Outstanding at end of year	<u>370,000</u>	\$ 11.65	<u>245,000</u>	\$ 10.97
Available for future grants	<u>107,010</u>		<u>232,010</u>	

11. Healthcare, Postretirement Benefits and Pension Plans

STV sponsors a defined benefit healthcare plan that provides postretirement medical benefits to all current and retired employees and their spouses upon attaining age 65, or age 55 with 10 years of service. The plan was amended to be non-contributory for officers effective July, 2000. For other retirees, the plan is contributory with retiree contributions adjusted annually, and contains other cost-sharing features such as deductibles and coinsurance. The accounting for the plan anticipates future cost-sharing changes to the written plan that are consistent with the Company's expressed intent to increase the retiree contribution rate annually for the expected general inflation rate for that year.

The following table presents the plan's status reconciled with amounts recognized in the Company's consolidated balance sheet (current and long-term):

	2005	2004
Changes in plan assets:		
Fair value of plan assets at beginning of year	\$ 0	\$ 0
Employer and retirees contributions	185,000	204,000
Benefits paid	<u>(185,000)</u>	<u>(204,000)</u>
Fair value of plan assets at year end	\$ 0	\$ 0
Accumulated postretirement benefit obligation	\$ (4,554,000)	\$ (3,624,000)
Unrecognized net loss	1,318,000	597,000
Unrecognized prior service costs	0	136,000
Unrecognized transition obligation	<u>447,000</u>	<u>504,000</u>
Accrued postretirement benefit cost	<u>\$ (2,789,000)</u>	<u>\$ (2,387,000)</u>

Net periodic postretirement benefit cost includes the following components:

	2005	2004	2003
Service cost	\$ 141,000	\$ 91,000	\$ 73,000
Interest cost	224,000	210,000	221,000
Amortization of transition obligation over 20 years	56,000	56,000	56,000
Amortization of unrecognized prior service cost	136,000	136,000	136,000
Amortization of unrecognized loss	30,000	36,000	4,000
Net periodic postretirement benefit cost	\$ 587,000	\$ 529,000	\$ 490,000

The weighted-average annual assumed rate of increase in the per capita cost of covered benefits (i.e., health care cost trend rate) is 9.6 percent for 2005 (10.4 percent for 2004 and 11.2 percent for 2003) and is assumed to decrease gradually to 5.5 percent in 2010 and remain at that level thereafter. The health care cost trend rate assumption has a significant effect on the amounts reported. For example, increasing the assumed health care cost trend rates by one percentage point in each year would increase the accumulated postretirement benefit obligation as of September 30, 2005, by \$690,000, and the aggregate of the service and interest cost components of net periodic postretirement benefit cost for 2005, 2004 and 2003 by \$60,000, \$46,000 and \$42,000, respectively.

Net periodic postretirement benefit cost for 2005, 2004 and 2003 was determined using a discount rate of 6.25 percent, 6.0 percent and 7.25 percent, respectively. The weighted-average discount rate used in determining the accumulated postretirement benefit obligation was 5.25 percent at September 30, 2005, and 6.25 percent at September 30, 2004.

The Company expects to contribute \$173,000 to its postretirement benefit plan in fiscal 2006 and is included in accrued expenses.

Estimated future benefit payments expected to be paid to plan participants in each of the next five fiscal years and in the aggregate for the five fiscal years thereafter is as follows:

Year ending September 30	
2006	\$ 173,000
2007	189,000
2008	207,000
2009	221,000
2010	242,000
2011 – 2015	1,449,000

In the fourth quarter of 2003, Congress passed the Medicare Prescription Drug Act of 2003 (the Act), which authorized Medicare to provide prescription drug benefits to retirees. To encourage employers to retain or provide postretirement drug benefits for their Medicare-eligible employees, beginning in 2006, the federal government will make subsidy payments to employers who sponsor postretirement benefit plans under which retirees receive prescription drug benefits that are "actuarially equivalent" to the prescription drug benefits provided under Medicare. In May 2004, FASB Staff Position No. 106-2, "Accounting and Disclosure Requirements Related to the Medicare Prescription Drug, Improvement and Modernization Act of 2003" (FSP No. 106-2), was issued which provides guidance on accounting for the effects of the new Medicare legislation. Adoption of FSP No. 106-2, is effective in fiscal 2006 for the Company. Current disclosure of the accumulated postretirement benefit obligation and net periodic postretirement benefit cost does not reflect any amounts associated with the subsidy because the Company has not yet concluded whether the benefits provided by the plan are actuarially equivalent to Medicare Part D under the Act.

STV has a defined contribution savings and investment plan covering substantially all employees. Employees may contribute up to 15 percent of base salary to the plan, excluding highly compensated employees, which are limited to 9

percent. The plan, as amended, includes a company match at the discretion of the Board of Directors. The Company's cost for this plan was \$608,000 and \$677,000 in 2004 and 2003, respectively. However, the amounts have been transferred to the ESOP at the discretion of the Board of Directors, as disclosed in Note 10.

12. Deferred Compensation

Deferred compensation consists of the following:

	2005	2004
Deferred compensation liability payable in fixed monthly installments of \$11,542, which includes interest at 16 percent through September 2006	\$ 127,000	\$ 236,000
Executive deferred compensation liability for certain executives, with annual interest at 1 percent above the prime rate as of each November 1, payable upon the termination of employment or approval of the Board of Directors	119,000	158,000
Non-qualified deferred compensation plan liability	3,224,000	2,468,000
Stock appreciation rights plan liability	826,000	529,000
Other	<u>71,000</u>	<u>246,000</u>
	\$ 4,367,000	\$ 3,637,000

The Company estimates that it will make payments of approximately \$171,000 related to its deferred compensation obligations in 2006 and is included in accrued expenses. The Company has funded \$3,224,000 of the total deferred compensation liability. Such funded amounts are included in other assets on the accompanying consolidated balance sheets.

Interest paid on deferred compensation during 2005, 2004 and 2003 amounted to \$38,000, \$55,000 and \$75,000, respectively.

13. Major Customers

The percentage of total revenues derived from contracts with a single client for fiscal years 2005, 2004 and 2003 was 10 percent, 10 percent and 11 percent, respectively.

Shareholder Information

STV Group Managing Officers

Dominick M. Servedio, P.E., Chairman & Chief Executive Officer
Michael S. Della Rocca, P.E., President & Chief Operating Officer
Peter W. Knipe, Director & Chief Financial Officer

Board of Directors

Dominick M. Servedio, P.E., Chairman & Chief Executive Officer
Michael Haratunian, P.E., Chairman Emeritus
Lillian C. Borrone, Director
Michael S. Della Rocca, P.E., Director; President & Chief Operating Officer
Peter W. Knipe, Director; Chief Financial Officer
G. Michael Stakias, Director

Transfer Agent and Registrar

Continental Stock Transfer & Trust Co.
2 Broadway
New York, NY 10004-2207

Counsel

Blank Rome LLP
One Logan Square
Philadelphia, PA 19103

Auditors

Grassi & Co., CPAs, P.C.
2001 Marcus Avenue
Lake Success, NY 11042

STV GROUP, INCORPORATED

Consolidated Financial Statements

Year Ended September 30, 2004

This document contains confidential business data that should not be released to any party without prior written consent.

Consolidated Balance Sheets
STV Group, Incorporated

	September 30	
	2004	2003
Assets		
Current Assets:		
Cash and cash equivalents	\$ 178,000	\$ 2,146,000
Accounts receivable	45,638,000	47,239,000
Costs and estimated profits of uncompleted contracts in excess of related billings	23,007,000	18,740,000
Prepaid expenses and other current assets	2,417,000	1,595,000
Prepaid income taxes	94,000	0
Total Current Assets	71,334,000	69,720,000
Property and equipment, net	1,311,000	1,994,000
Deferred income taxes	537,000	395,000
Other assets	3,016,000	2,703,000
Total Assets	\$ 76,198,000	\$ 74,812,000
Liabilities and Stockholder's Equity		
Current Liabilities:		
Revolving line of credit	\$ 1,700,000	\$ 0
Current portion of long-term debt	4,495,000	3,857,000
Accounts payable	14,062,000	13,527,000
Billings on uncompleted contracts in excess of related costs and estimated profits	8,338,000	8,144,000
Accrued payroll and related expenses	9,946,000	11,390,000
Accrued expenses	3,648,000	2,631,000
Deferred compensation	391,000	141,000
Deferred income taxes	779,000	926,000
Income taxes payable	0	53,000
Total Current Liabilities	43,359,000	40,669,000
Deferred compensation	3,246,000	2,520,000
Long-term debt, less current portion	8,961,000	12,817,000
Post-retirement benefits	2,200,000	2,000,000
Interest rate swap agreement	153,000	400,000
Total Liabilities	57,919,000	58,406,000
Stockholder's Equity:		
Common stock, par \$.01, authorized 5,000,000 shares	24,000	24,000
Capital in excess of par	3,228,000	3,228,000
Retained earnings	15,180,000	13,554,000
Accumulated other comprehensive loss	(153,000)	(400,000)
Total Stockholder's Equity	18,279,000	16,406,000
Total Liabilities and Stockholder's Equity	\$ 76,198,000	\$ 74,812,000

See notes to consolidated financial statements.

Consolidated Statements of Operations

STV Group, Incorporated

	For the Fiscal Year Ended September 30		
	2004	2003	2002
Total revenues	\$ 197,694,000	\$ 224,384,000	\$ 213,934,000
Subcontract and procurement	<u>65,519,000</u>	<u>86,064,000</u>	<u>79,905,000</u>
Operating revenue	132,175,000	138,320,000	134,029,000
Costs and expenses:			
Costs of services	114,137,000	117,994,000	112,299,000
General and administrative	<u>15,766,000</u>	<u>14,870,000</u>	<u>14,071,000</u>
Total costs and expenses	129,903,000	132,864,000	126,370,000
Operating income	2,272,000	5,456,000	7,659,000
Interest expense	(862,000)	(1,093,000)	(1,641,000)
Interest income	20,000	117,000	68,000
Miscellaneous income, net	<u>51,000</u>	<u>82,000</u>	<u>34,000</u>
Other expense, net	(791,000)	(894,000)	(1,539,000)
Income before income taxes	1,481,000	4,562,000	6,120,000
Income tax (benefit) expense	<u>(145,000)</u>	<u>347,000</u>	<u>(647,000)</u>
Net income	\$ 1,626,000	\$ 4,215,000	\$ 6,767,000

See notes to consolidated financial statements.

Consolidated Statements of Stockholder's Equity

STV Group, Incorporated

	Common Stock				Accumulated	Total
	Number of	Amount	Capital in	Retained	other	Stockholder's
	shares		excess of par	earnings	comprehensive	Equity
					loss	
Balance, September 30, 2001	2,385,052	\$ 24,000	\$ 3,228,000	\$ 2,572,000	\$ 0	\$ 5,824,000
Net income for the year				6,767,000		6,767,000
Unrealized gain on interest rate swap agreement					(474,000)	(474,000)
Comprehensive income						6,293,000
Balance, September 30, 2002	2,385,052	\$ 24,000	\$ 3,228,000	\$ 9,339,000	\$ (474,000)	\$ 12,117,000
Net income for the year				4,215,000		4,215,000
Unrealized gain on interest rate swap agreement					74,000	74,000
Comprehensive income						4,289,000
Balance, September 30, 2003	2,385,052	\$ 24,000	\$ 3,228,000	\$ 13,554,000	\$ (400,000)	\$ 16,406,000
Net income for the year				1,626,000		1,626,000
Unrealized gain on interest rate swap agreement					247,000	247,000
Comprehensive income						1,873,000
Balance, September 30, 2004	2,385,052	\$ 24,000	\$ 3,228,000	\$ 15,180,000	\$ (153,000)	\$ 18,279,000

See notes to consolidated financial statements.

Consolidated Statements of Cash Flows
STV Group, Incorporated

	For the Fiscal Year Ended September 30		
	2004	2003	2002
Operating Activities			
Net income	\$ 1,626,000	\$ 4,215,000	\$ 6,767,000
Adjustments to reconcile net income to net cash provided by (used in) operating activities:			
Depreciation and amortization	1,159,000	1,470,000	1,600,000
Deferred income taxes	(342,000)	(476,000)	(1,504,000)
Stock appreciation rights	251,000	278,000	0
Loss (gain) on disposal of land, property and equipment	12,000	(67,000)	7,000
Changes in operating assets and liabilities:			
Accounts receivable	1,601,000	2,423,000	(7,328,000)
Costs and estimated profits of uncompleted contracts in excess of related billings	(4,267,000)	(2,568,000)	5,934,000
Other current and non-current assets	(69,000)	(896,000)	3,328,000
Accounts payable and other liabilities	1,033,000	(2,579,000)	1,079,000
Billings on uncompleted contracts in excess of related costs and estimated profits	194,000	(2,833,000)	(223,000)
Current income taxes	(94,000)	(296,000)	4,594,000
Net cash provided by (used in) operating activities	\$ 1,104,000	\$ (1,329,000)	\$ 14,254,000
Investing Activities			
Proceeds from sale of land	\$ 0	\$ 124,000	\$ 0
Purchase of property and equipment	(210,000)	(368,000)	(964,000)
Purchase of software	(75,000)	(182,000)	(445,000)
Net cash used in investing activities	\$ (285,000)	\$ (426,000)	\$ (1,409,000)
Financing Activities			
Proceeds from line of credit	\$ 11,600,000	\$ 0	\$ 5,250,000
Principal payments on line of credit and long term borrowings	(14,387,000)	(5,544,000)	(10,470,000)
Net cash used in financing activities	\$ (2,787,000)	\$ (5,544,000)	\$ (5,220,000)
(Decrease) increase in cash	(1,968,000)	(7,299,000)	7,625,000
Cash and cash equivalents at beginning of year	2,146,000	9,445,000	1,820,000
Cash and cash equivalents at end of year	\$ 178,000	\$ 2,146,000	\$ 9,445,000

See notes to consolidated financial statements.

Notes to Consolidated Financial Statements
STV Group, Incorporated

1. Significant Accounting Policies

Basis of Presentation

STV Group, Incorporated, (STV or the Company) and its subsidiaries specialize in consulting engineering, architectural, planning, environmental, construction management and related services. The Company's clients consist primarily of various federal, state and local governmental agencies, with an increasing presence in the private sector in geographic regions throughout the United States.

STV is a wholly-owned subsidiary of the STV Employee Stock Ownership Plan (ESOP).

Principles of Consolidation

The consolidated financial statements include the accounts of STV and its subsidiaries. Such accounts include the Company's proportional share of assets, liabilities, revenue and expenses related to its participation in existing joint ventures. All significant intercompany transactions and balances have been eliminated.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

Revenue Recognition and Concentration of Credit Risk

STV uses the percentage-of-completion method of accounting for contract revenues. Progress toward completion is measured on a contract-by-contract basis using direct labor costs incurred to date as compared with estimated total labor costs at completion. The asset, "cost and estimated profits of uncompleted contracts in excess of related billings," represents revenues recognized in excess of amounts billed. The liability, "billings on uncompleted contracts in excess of related costs and estimated profits," represents billings in excess of revenues recognized. Significant changes in contract terms affecting the estimated revenue amounts and related billings are recorded and recognized in the period in which the revisions are determined.

In the normal course of its business and consistent with industry practices, the Company grants credit to its clients without requiring collateral. Concentrations of credit risk relative to trade receivables are limited due to the Company's client base. The Company evaluates the past due status of its trade receivables based on contractual terms.

Fair Value of Financial Instruments

STV's financial instruments consist primarily of cash and cash equivalents, trade receivables, investments in U.S. treasury bills, trade payables, long-term debt and an interest rate swap agreement. Cash and cash equivalents include all highly liquid investments with maturities of three months or less when purchased. The interest rate swap agreement is recorded at fair value. The carrying amount of the Company's long-term debt and revolving credit facility approximates fair value because the interest rates are based upon variable reference rates. The book values of the remaining financial instruments approximate their respective fair values because of the short-term maturities of these instruments.

Depreciation and Amortization

~~Depreciation and amortization is computed primarily on the straight-line method over the estimated useful lives of the~~ assets ranging from three to seven years, or the life of the lease. Purchased software, included in other assets, is amortized over an estimated useful life of three years.

Reclassifications

In fiscal 2004, the Company has classified costs related to its information technology systems as general and administrative expenses. Previously such costs were included in costs of services. The company has reclassified \$5,102,000 and \$5,390,000 in 2003 and 2002, respectively, to conform to the 2004 presentation.

2. Costs and Estimated Profits of Uncompleted Contracts in Excess of Related Billings

Costs and estimated profits of uncompleted contracts at September 30, 2004, and 2003, respectively, are as follows:

	2004	2003
Costs and estimated profits on uncompleted contracts	\$ 869,398,000	\$ 815,443,000
Less billings to date	<u>854,729,000</u>	<u>804,847,000</u>
	\$ 14,669,000	\$ 10,596,000

Costs and estimated profits of uncompleted contracts are included in the accompanying balance sheets under the following captions:

	2004	2003
Costs and estimated profits of uncompleted contracts in excess of related billings	\$ 23,007,000	\$ 18,740,000
Billings on uncompleted contracts in excess of related costs and estimated profits	<u>8,338,000</u>	<u>8,144,000</u>
	\$ 14,669,000	\$ 10,596,000

Included in accounts receivable are retainages related to uncompleted contracts in the amounts of \$7,946,000 and \$7,665,000 at September 30, 2004, and 2003, respectively. The collection of retainages generally coincides with final project acceptance.

3. Property and Equipment

Property and equipment, at cost, are as follows:

	2004	2003
Equipment	\$ 3,658,000	\$ 3,553,000
Furniture and fixtures	3,477,000	3,391,000
Leasehold improvements	<u>2,365,000</u>	<u>2,390,000</u>
	9,500,000	9,334,000
Less:		
Accumulated depreciation and amortization	<u>8,189,000</u>	<u>7,340,000</u>
	\$ 1,311,000	\$ 1,994,000

4. Long-term Debt

At September 30, 2004, the Company's credit facility included a term loan and an \$8,000,000 revolving line of credit. The revolving line of credit included a \$4,000,000 subfacility for the issuance of standby and commercial letters of credit. At September 30, 2004, borrowings of \$1,700,000 and approximately \$2,051,000 letters of credit were outstanding under the revolving line of credit and related subfacility. The loans were secured by the Company's assets.

At the option of STV, the revolver and approximately half of the term loan may bear interest at either rates based upon the London Interbank Offered Rate ("LIBOR") or the bank's prime rate plus an applicable margin based on the ratio of total funded debt to earnings before interest, taxes, depreciation and amortization on a consolidated basis. A commitment fee is due based on the average unused portion of the revolving line of credit. Such commitment fee ranged from .425 percent to .5 percent per annum. A fee was paid based on letters of credit outstanding, payable quarterly in an amount equal to 1.5 percent per annum.

The Company deferred certain bank fees in 2001 amounting to \$680,000 in connection with the facility and is amortizing such costs over the term of the facility. Unamortized bank fees included in other assets at September 30, 2004, total \$261,000.

Long-term debt consists of the following:

	2004	2003
Term loan payable in quarterly principal installments of \$964,000, plus mandatory prepayments, if applicable, with remaining principal due October 1, 2006, (interest rate of 3.9% and 3.4% at September 30, 2004, and 2003, respectively)	\$ 12,817,000	\$ 16,674,000
Other, payable in monthly installments of \$108,000, including interest, through April 2005	<u>639,000</u>	<u>0</u>
	13,456,000	16,674,000
Less: Current portion	<u>4,495,000</u>	<u>3,857,000</u>
	\$ 8,961,000	\$ 12,817,000

Interest paid during 2004, 2003 and 2002 totaled \$916,000, \$1,164,000 and \$1,383,000 respectively.

On November 4, 2004, the Company terminated its previously existing term loan and revolving line of credit facility and entered into a new \$21,000,000 Loan and Security Agreement consisting of an \$8,000,000 term loan and a \$13,000,000 revolving line of credit. The revolving credit facility expires October 31, 2007, and includes a \$4,000,000 subfacility for the issuance of standby letters of credit. Borrowings of \$3,853,000 on the previously existing term loan have been converted to borrowings under the new revolving line of credit. The term loan is payable in quarterly principal installments of \$400,000 through October 2009. The term loan is subject to mandatory prepayments upon sales of assets and property outside of the ordinary course of business; the issuance of additional equity interests in STV or any of its subsidiaries and the receipt of certain extraordinary payments. The loans are secured by the Company's assets.

At the option of STV, the revolver and approximately half of the term loan may bear interest at either rates based upon the London Interbank Offered Rate ("LIBOR") or the bank's prime rate plus an applicable margin based on the ratio of total funded debt to earnings before interest, taxes, depreciation and amortization. A commitment fee is due based on the average unused portion of the revolving line of credit. Such commitment fee will range from .25 percent to .5 percent per annum based on the same ratio set forth above. A fee will also be paid based on letters of credit outstanding, payable quarterly in an amount equal to 1.25 per cent per annum.

The Loan and Security Agreement contains financial and other restrictive covenants including restrictions on payments of dividends, and compliance with minimum consolidated capital funds, interest expense coverage ratio, fixed charge coverage ratio, and maximum funded debt to consolidated earnings before interest, taxes, depreciation and amortization.

The Company will be required to write-off the remaining deferred financing fees of approximately \$261,000 in fiscal 2005 in connection with the termination of the previous credit facility.

Annual maturities of long-term debt, which gives effect to the \$8,000,000 term loan borrowing on November 4, 2004, are as follows:

<i>Year ending September 30</i>	
2005	\$2,803,000
2006	1,600,000
2007	1,600,000
2008	1,600,000
2009	1,600,000
Thereafter	400,000

5. Derivative Financial Instruments

The Company accounts for its derivative financial instruments in accordance with SFAS No. 149, "Amendment of Statement 133 on Derivative Instruments and Hedging Activities." This standard requires that all derivative financial instruments, such as interest rate swap agreements, be recognized in the financial statements and measured at fair value. The Company does not hold or issue derivative financial instruments for trading or speculative purposes.

As required by the Company's term loan, the Company entered into an interest rate swap agreement on November 30, 2001, that effectively converts a portion of its floating rate debt to a fixed rate. Under the interest rate swap agreement, the Company pays an amount equal to the specified fixed-rate of interest of 4.43 percent on the notional principal amount, adjusted quarterly, through October 1, 2006, and receives a variable rate of interest equal to the three-month LIBOR on the same notional principal amount (\$6,785,000 at September 30, 2004). No other cash payments are made unless the contract is terminated prior to maturity. As of September 30, 2004, the Company has recorded a long-term liability and accumulated other comprehensive loss of \$153,000 that represents the fair value of the interest rate swap agreement.

In connection with the new credit facility, the previous lender has assigned the Company's outstanding interest rate swap agreement to the new lender.

6. Income Taxes

Effective October 1, 2001, the Company elected to be taxed as an S Corporation for federal and certain state income tax purposes. Accordingly, the stockholder assumed the obligations and benefits relative to the federal and applicable state income taxes attributable to the Company's operations. The Company may incur certain tax liabilities related to "built-in gains" that were present as of the election date and has recorded a liability for such contingency. Deferred taxes have been adjusted to reflect the impact of the S Corporation election on October 1, 2001. The impact was an increase in the results of operations in fiscal 2002 and increased stockholder's equity of \$1,100,000.

Income tax expense (benefit) consists of the following:

	2004	2003	2002
Current:			
Federal	\$ 0	\$ 349,000	\$ 340,000
State and local	<u>197,000</u>	<u>474,000</u>	<u>517,000</u>
Total current	\$ 197,000	\$ 823,000	\$ 857,000
Deferred:			
Federal	\$ (225,000)	\$ (349,000)	\$ (1,154,000)
State and local	<u>(117,000)</u>	<u>(127,000)</u>	<u>(350,000)</u>
Total deferred	\$ (342,000)	\$ (476,000)	\$ (1,504,000)
Total income tax (benefit) expense	\$ (145,000)	\$ 347,000	\$ (647,000)

The income tax benefit in 2004 is the result of the reversal of certain net deferred tax liabilities of approximately \$225,000, offset by state income taxes. Income tax expense in 2003 relates to certain states that do not recognize S Corporation status. An income tax benefit in 2002 was recorded primarily due to the reversal of certain net deferred tax liabilities of approximately \$1,100,000 related to the Company's election of S Corporation status effective October 1, 2001, offset by state income taxes.

Temporary differences between financial statement and tax reporting that give rise to significant portions of the deferred tax assets consist primarily of certain accruals, which are not currently deductible for tax purposes; and state net operating loss carryforwards. Temporary differences between financial statement and tax reporting that give rise to significant portions of the deferred tax liabilities consist primarily of retainages in accounts receivable.

A summary of deferred tax assets and liabilities is as follows:

	2004	2003
Total deferred tax assets	\$ 1,585,000	\$ 1,456,000
Total deferred tax liabilities	(941,000)	(1,101,000)
Valuation allowance	(886,000)	(886,000)
Net deferred tax liability	\$ (242,000)	\$ (531,000)

As of September 30, 2004, the Company has net operating loss carryforwards in certain jurisdictions of approximately \$9,100,000 for income tax purposes that expire in various years through 2011. A valuation allowance has been established at September 30, 2004 and 2003 as it is most likely that these carryforward benefits will not be realized due to the Company's S Corporation status.

STV made income tax payments of \$320,000, \$1,154,000 and \$267,000 in 2004, 2003 and 2002, respectively. The Company received \$29,000, \$35,000 and \$4,004,000 in income tax refunds in 2004, 2003 and 2002, respectively.

7. Commitments and Contingencies

STV is involved in various legal proceedings arising in the ordinary course of business. The Company's management believes that the final resolution of its litigation matters will not have a material adverse effect on STV's financial statements.

In addition, a garnishment proceeding was commenced in March 1994 against the Company's professional liability carrier. The plaintiff-creditor seeks to enforce an approximate \$4,000,000 judgment entered in New York against an entity whose assets and liabilities were partially acquired by the Company in 1987. The Company intervened in that proceeding and, along with its professional liability carrier, denies that there is any coverage for the loss under the professional liability policy. The Company and its professional liability insurer intend to vigorously pursue defenses available to them.

The Company is a minority partner in a joint venture which was formed for purposes of contractual performance. The contract has been terminated by the project owner. The project owner subsequently entered suit against the joint venture and has refused to make remaining payments under the existing contractual obligation, of which the Company's share includes unbilled receivables of approximately \$1,700,000 for which no provision for uncollectible accounts has been recorded. Such matter is insured under the Company's professional liability insurance policy. The joint venture is vigorously contesting the termination and other allegations in the lawsuit.

~~In the normal course of business, the Company is subject to certain contractual guarantees. Generally, such guarantees relate to project schedules and performance. The Company's management believes that such guarantees should not have a material adverse effect on the consolidated financial statements.~~

STV has noncancellable lease agreements for the use of office space and equipment. These agreements expire on varying dates and in some instances contain renewal options. In addition to the base rental costs, occupancy lease agreements generally provide for rent escalations resulting from increased assessments for real estate taxes and other charges. Future minimum lease payments under noncancellable leases with remaining terms of more than one year are due as follows:

<i>Operating Leases</i>	
2005	\$ 7,078,000
2006	6,700,000
2007	5,740,000
2008	4,964,000
2009	4,779,000
Thereafter	22,089,000
Total minimum lease payments	\$ 51,350,000

Rental expense under operating leases amounted to \$7,152,000, \$6,973,000 and \$6,976,000 in 2004, 2003 and 2002, respectively.

8. Stock Plans

On October 1, 1981, STV initiated an Employee Stock Ownership Plan (ESOP) that covers substantially all of its employees. Contributions to the plan are based on a percentage of eligible salaries. Expense for the years 2004, 2003 and 2002 was \$3,042,000, \$3,395,000 and \$2,537,000, respectively. The expense for 2004, 2003 and 2002 includes \$608,000, \$677,000 and \$626,000 of 401K employer match that was converted to the ESOP at the discretion of the Board of Directors. The liability is funded through either the issuance of shares of Company stock (at fair market value on date of issuance) upon approval of the trustee or a cash payment. The Company will fund the 2004 contribution with cash payments throughout calendar years 2004 and 2005. At September 30, 2004, each share held by the ESOP is valued at \$12.90.

The Compensation Committee of the Board of Directors approved a Stock Appreciation Rights Plan (the SAR Plan) effective October 1, 2002. The SAR Plan is administered by the Compensation Committee. Participants in the SAR Plan are granted units where each unit shall be deemed to be equivalent in value to one share of the Company's common stock. The maximum number of units that may be granted under the SAR plan is 477,010. The units vest three years from the date of grant. For the year ended September 30, 2004, and 2003, the Company recognized expense related to the SAR's of \$251,000 and \$278,000, respectively.

The following table summarizes the Company's SAR Plan activity:

	2004		2003	
	Number of SARs	Weighted Average Value on Date of Grant	Number of SARs	Weighted Average Value on Date of Grant
Outstanding at beginning of year	238,000	\$ -		\$ -
Granted	18,000	12.80	238,000	10.83
Forfeited	(11,000)	10.83	-	-
Outstanding at end of year	<u>245,000</u>	10.97	<u>238,000</u>	10.83
Available for future grants	<u>232,010</u>		<u>239,010</u>	

9. Healthcare, Postretirement Benefits and Pension Plans

STV sponsors a defined benefit healthcare plan that provides postretirement medical benefits to all current and retired employees and their spouses upon attaining age 65, or age 55 with 10 years of service. The plan was amended to be non-contributory for officers effective July, 2000. For other retirees, the plan is contributory with retiree contributions adjusted annually, and contains other cost-sharing features such as deductibles and coinsurance. The accounting for the plan

anticipates future cost-sharing changes to the written plan that are consistent with the Company's expressed intent to increase the retiree contribution rate annually for the expected general inflation rate for that year.

The following table presents the plan's status reconciled with amounts recognized in the Company's balance sheet (current and long-term):

	2004	2003
Changes in plan assets:		
Fair value of plan assets at beginning of year	\$ 0	\$ 0
Employer and retirees contributions	204,000	177,000
Benefits paid	(204,000)	(177,000)
Fair value of plan assets at year end	\$ 0	\$ 0
Accumulated postretirement benefit obligation	\$ (3,624,000)	\$ (3,774,000)
Unrecognized net loss	597,000	880,000
Unrecognized prior service costs	136,000	273,000
Unrecognized transition obligation	504,000	559,000
Accrued postretirement benefit cost	\$ (2,387,000)	\$ (2,062,000)

Net periodic postretirement benefit cost includes the following components:

	2004	2003	2002
Service cost	\$ 91,000	\$ 73,000	\$ 52,000
Interest cost	210,000	221,000	211,000
Amortization of transition obligation over 20 years	56,000	56,000	56,000
Amortization of unrecognized prior service cost	136,000	136,000	136,000
Amortization of unrecognized gain	36,000	4,000	0
Net periodic postretirement benefit cost	\$ 529,000	\$ 490,000	\$ 455,000

The weighted-average annual assumed rate of increase in the per capita cost of covered benefits (i.e., health care cost trend rate) is 10.4 percent for 2004 (11.2 percent for 2003 and 12 percent for 2002) and is assumed to decrease gradually to 5.5 percent in 2010 and remain at that level thereafter. The health care cost trend rate assumption has a significant effect on the amounts reported. For example, increasing the assumed health care cost trend rates by one percentage point in each year would increase the accumulated postretirement benefit obligation as of September 30, 2004, by \$481,000, and the aggregate of the service and interest cost components of net periodic postretirement benefit cost for 2004, 2003 and 2002 by \$46,000, \$42,000 and \$40,000, respectively.

Net periodic postretirement benefit cost for 2004, 2003 and 2002 was determined using a discount rate of 6.0 percent, 7.25 percent and 7.50 percent, respectively. The weighted-average discount rate used in determining the accumulated postretirement benefit obligation was 6.25 percent at September 30, 2004, and 6.0 percent at September 30, 2003.

The Company expects to contribute \$169,000 to its postretirement benefit plan in fiscal 2005.

Estimated future benefit payments expected to be paid to plan participants in each of the next five fiscal years and in the aggregate for the five fiscal years thereafter is as follows:

Year ending September 30	
2005	\$ 169,000
2006	185,000
2007	202,000
2008	221,000
2009	237,000
2010 – 2014	1,316,000

In the fourth quarter of 2003, Congress passed the Medicare Prescription Drug Act of 2003 (the Act), which authorized Medicare to provide prescription drug benefits to retirees. To encourage employers to retain or provide postretirement drug benefits for their Medicare-eligible employees, beginning in 2006, the federal government will make subsidy payments to employers who sponsor postretirement benefit plans under which retirees receive prescription drug benefits that are “actuarially equivalent” to the prescription drug benefits provided under Medicare. In May 2004, FASB Staff Position No. 106-2, “Accounting and Disclosure Requirements Related to the Medicare Prescription Drug, Improvement and Modernization Act of 2003 (FSP No. 106-2), was issued which provides guidance on accounting for the effects of the new Medicare legislation. Adoption of FSP No. 106-2, is effective in fiscal 2006 for the Company. Current disclosure of the accumulated postretirement benefit obligation and net periodic postretirement benefit cost does not reflect any amounts associated with the subsidy because the company has not yet concluded whether the benefits provided by the plan are actuarially equivalent to Medicare Part D under the Act.

STV has a defined contribution savings and investment plan covering substantially all employees. Employees may contribute up to 15 percent of base salary to the plan, excluding highly compensated employees, which are limited to 9 percent. The plan, as amended, includes a company match at the discretion of the Board of Directors. The Company’s cost for this plan was \$608,000, \$677,000 and \$626,000 in 2004, 2003 and 2002, respectively. However, the amounts have been converted to the ESOP at the discretion of the Board of Directors, as disclosed in Note 8.

10. Major Customers

The percentage of total revenues derived from contracts with a single client for fiscal years 2004, 2003 and 2002 was 10 percent, 11 percent and 11 percent, respectively.

11. Deferred Compensation

Deferred compensation consists of the following:

	2004	2003
Deferred compensation liability payable in fixed monthly installments of \$11,542, which includes interest at 16 percent through September 2006	\$ 236,000	\$ 328,000
Executive deferred compensation liability for certain executives, with annual interest at 1 percent above the prime rate as of each November 1, payable upon the termination of employment or approval of the Board of Directors	158,000	202,000
Non-qualified deferred compensation plan liability	2,468,000	1,698,000
Stock appreciation rights plan liability	529,000	278,000
Other	<u>246,000</u>	<u>155,000</u>
	\$ 3,637,000	\$ 2,661,000

The Company estimates that it will make payments of approximately \$391,000 related to its deferred compensation obligations in 2005. The Company has funded \$2,468,000 of the total deferred compensation liability. Such funded amounts are included in other assets on the accompanying consolidated balance sheets.

Interest paid on deferred compensation during 2004, 2003 and 2002 amounted to \$55,000, \$75,000 and \$112,000, respectively.

Report of Independent Auditors

Stockholder and Board of Directors

STV Group, Incorporated

We have audited the accompanying consolidated balance sheets of STV Group, Incorporated, as of September 30, 2004 and 2003, and the related consolidated statements of operations, stockholder's equity, and cash flows for each of the three years in the period ended September 30, 2004. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of STV Group, Incorporated as of September 30, 2004 and 2003, and the consolidated results of its operations and its cash flows for each of the three years in the period ended September 30, 2004 in conformity with accounting principles generally accepted in the United States.

Ernst + Young LLP

Philadelphia, Pennsylvania
November 11, 2004

STV GROUP, INCORPORATED

Consolidated Financial Statements

Year Ended September 30, 2003

This document contains confidential business data that should not be released to any party without prior written consent.

Consolidated Balance Sheets
STV Group, Incorporated

	September 30	
	2003	2002
Assets		
Current Assets:		
Cash and cash equivalents	\$ 2,146,000	\$ 9,445,000
Accounts receivable	47,239,000	49,662,000
Costs and estimated profits of uncompleted contracts in excess of related billings	18,740,000	16,172,000
Prepaid expenses and other current assets	<u>1,595,000</u>	<u>1,474,000</u>
Total Current Assets	69,720,000	76,753,000
Property and equipment, net	1,994,000	2,808,000
Deferred income taxes	395,000	304,000
Other assets	<u>2,703,000</u>	<u>2,091,000</u>
Total Assets	\$ 74,812,000	\$ 81,956,000
Liabilities and Stockholder's Equity		
Current Liabilities:		
Current portion of long-term debt	\$ 3,857,000	\$ 3,965,000
Accounts payable	13,527,000	16,556,000
Billings on uncompleted contracts in excess of related costs and estimated profits	8,144,000	10,977,000
Accrued payroll and related expenses	11,390,000	11,868,000
Accrued expenses	2,631,000	2,733,000
Deferred compensation	141,000	134,000
Deferred income taxes	926,000	1,311,000
Income tax payable	<u>53,000</u>	<u>349,000</u>
Total Current Liabilities	40,669,000	47,893,000
Deferred compensation	2,520,000	1,619,000
Long-term debt, less current portion	12,817,000	18,253,000
Post-retirement benefits	2,000,000	1,600,000
Interest rate swap agreement	<u>400,000</u>	<u>474,000</u>
Total Liabilities	58,406,000	69,839,000
Stockholder's Equity:		
Common stock, par \$.01, authorized 5,000,000 shares	24,000	24,000
Capital in excess of par	3,228,000	3,228,000
Retained earnings	13,554,000	9,339,000
Accumulated other comprehensive loss	<u>(400,000)</u>	<u>(474,000)</u>
Total Stockholder's Equity	<u>16,406,000</u>	<u>12,117,000</u>
Total Liabilities and Stockholder's Equity	\$ 74,812,000	\$ 81,956,000

See notes to consolidated financial statements.

Consolidated Statements of Operations
STV Group, Incorporated

	For the Fiscal Year Ended September 30		
	2003	2002	2001
Total revenues	\$ 224,384,000	\$ 213,934,000	\$ 187,335,000
Subcontract and procurement costs	<u>86,064,000</u>	<u>79,905,000</u>	<u>62,444,000</u>
Operating revenue	138,320,000	134,029,000	124,891,000
Costs and expenses:			
Costs of services	123,096,000	117,689,000	107,370,000
General and administrative	9,768,000	8,681,000	10,359,000
Merger-related expenses	<u>0</u>	<u>0</u>	<u>8,275,000</u>
Total costs and expenses	132,864,000	126,370,000	126,004,000
Operating income	5,456,000	7,659,000	(1,113,000)
Interest expense	(1,093,000)	(1,641,000)	(361,000)
Interest income	117,000	68,000	265,000
Miscellaneous income, net	<u>82,000</u>	<u>34,000</u>	<u>32,000</u>
Other expense, net	(894,000)	(1,539,000)	(64,000)
Income (loss) before income taxes	4,562,000	6,120,000	(1,177,000)
Income tax expense (benefit)	<u>347,000</u>	<u>(647,000)</u>	<u>402,000</u>
Net income (loss)	\$ 4,215,000	\$ 6,767,000	\$ (1,579,000)

See notes to consolidated financial statements.

Consolidated Statements of Stockholder's Equity
STV Group, Incorporated

	Common Stock			Retained earnings	Capital in excess of par	Accumulated other comprehensive loss	Treasury Stock		Total Stockholder's Equity
	Number of shares	Amount					Number of shares	Amount	
Balance, September 30, 2000	4,106,154	\$ 42,000		\$ 19,318,000	\$ 5,557,000	\$ 0	(248,836)	\$ (771,000)	\$ 24,146,000
Net loss for the year				(1,579,000)					(1,579,000)
Comprehensive loss									(1,579,000)
Exercise of options	440,193	4,000			4,768,000				4,772,000
Purchase of treasury stock							(1,912,459)	(21,515,000)	(21,515,000)
Cancellation of treasury stock	(2,161,295)	(22,000)		(15,167,000)	(7,097,000)		2,161,295	22,286,000	0
Balance, September 30, 2001	2,385,052	\$ 24,000		\$ 2,572,000	\$ 3,228,000	\$ 0	0	\$ 0	\$ 5,824,000
Net income for the year				6,767,000					6,767,000
Unrealized loss on interest rate swap agreement						(474,000)			(474,000)
Comprehensive income									6,293,000
Balance, September 30, 2002	2,385,052	\$ 24,000		\$ 9,339,000	\$ 3,228,000	\$ (474,000)	0	\$ 0	\$ 12,117,000
Net income for the year				4,215,000					4,215,000
Unrealized gain on interest rate swap agreement						74,000			74,000
Comprehensive income									4,289,000
Balance, September 30, 2003	2,385,052	\$ 24,000		\$ 13,554,000	\$ 3,228,000	\$ (400,000)	0	\$ 0	\$ 16,406,000

See notes to consolidated financial statements.

Consolidated Statements of Cash Flows

STV Group, Incorporated

	For the Fiscal Year Ended September 30		
	2003	2002	2001
Operating Activities			
Net income (loss)	\$ 4,215,000	\$ 6,767,000	\$ (1,579,000)
Adjustments to reconcile net income (loss) to net cash (used in) provided by operating activities:			
Depreciation and amortization	1,470,000	1,600,000	1,510,000
Deferred income taxes	(476,000)	(1,504,000)	3,375,000
Non-cash stock compensation expense	0	0	4,626,000
Non-cash stock appreciation rights	278,000	0	0
(Gain) loss on disposal of land, property and equipment	(67,000)	7,000	13,000
Changes in operating assets and liabilities:			
Accounts receivable	2,423,000	(7,328,000)	(6,052,000)
Costs and estimated profits of uncompleted contracts in excess of related billings	(2,568,000)	5,934,000	(3,702,000)
Other current and non-current assets	(896,000)	3,328,000	(4,263,000)
Accounts payable and other liabilities	(2,579,000)	1,079,000	7,380,000
Billings on uncompleted contracts in excess of related costs and estimated profits	(2,833,000)	(223,000)	(1,314,000)
Current income taxes	<u>(296,000)</u>	<u>4,594,000</u>	<u>(5,173,000)</u>
Net cash (used in) provided by operating activities	\$ (1,329,000)	\$ 14,254,000	\$ (5,179,000)
Investing Activities			
Proceeds from sale of land	\$ 124,000	\$ 0	\$ 0
Purchase of property and equipment	(368,000)	(964,000)	(1,381,000)
Purchase of software	<u>(182,000)</u>	<u>(445,000)</u>	<u>(331,000)</u>
Net cash used in investing activities	\$ (426,000)	\$ (1,409,000)	\$ (1,712,000)
Financing Activities			
Proceeds from issuance of common stock	\$ 0	\$ 0	\$ 147,000
Proceeds from line of credit and long term borrowings	0	5,250,000	29,100,000
Principal payments on line of credit and long term borrowings	(5,544,000)	(10,470,000)	(2,403,000)
Purchase of treasury stock	<u>0</u>	<u>0</u>	<u>(21,515,000)</u>
Net cash (used in) provided by financing activities	\$ (5,544,000)	\$ (5,220,000)	\$ 5,329,000
(Decrease) increase in cash	(7,299,000)	7,625,000	(1,562,000)
Cash and cash equivalents at beginning of year	<u>9,445,000</u>	<u>1,820,000</u>	<u>3,382,000</u>
Cash and cash equivalents at end of year	\$ 2,146,000	\$ 9,445,000	\$ 1,820,000

See notes to consolidated financial statements.

Notes to Consolidated Financial Statements

STV Group, Incorporated

1. Significant Accounting Policies**Basis of Presentation**

STV Group, Incorporated, (STV or the Company) and its subsidiaries specialize in consulting engineering, architectural, planning, environmental, construction management and related services. The Company's clients consist primarily of various federal, state and local governmental agencies, with an increasing presence in the private sector in geographic regions throughout the United States.

On August 29, 2001, the stockholders of STV Group approved the Agreement and Plan of Merger dated April 30, 2001, between the Company and the Company's employee stock ownership plan (ESOP). STVG Acquisition, Inc., a newly-formed, wholly-owned subsidiary of the ESOP (a Pennsylvania corporation) merged with STV, with STV being the surviving corporation. Shares not owned by the ESOP were converted into the right to receive \$11.25 in cash. The ESOP retained its shares and became the sole shareholder of the Company. Shares previously held in treasury were cancelled. Holders of approximately 1,063,000 outstanding employee stock options exercised their options through either cashless exercises and then a cash payment equal to \$11.25 per share for the net shares issued, or the receipt of a cash payment equal to \$11.25 less the option exercise price. The Company financed the merger and related charges with a \$27 million credit facility (see Note 4).

The merger has been accounted for as a combination between commonly-controlled entities. Under this method of accounting, the net assets have been contributed at historical book value. Fees and expenses incurred in connection with the merger have been expensed as incurred.

Principles of Consolidation

The consolidated financial statements include the accounts of STV and its subsidiaries. All significant intercompany transactions and balances have been eliminated.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

Revenue Recognition and Concentration of Credit Risk

STV uses the percentage-of-completion method of accounting for contract revenues. Progress toward completion is measured on a contract-by-contract basis using direct labor costs incurred to date as compared with estimated total labor costs at completion. The asset, "cost and estimated profits of uncompleted contracts in excess of related billings," represents revenues recognized in excess of amounts billed. The liability, "billings on uncompleted contracts in excess of related costs and estimated profits," represents billings in excess of revenues recognized. Significant changes in contract terms affecting the results of operations are recorded and recognized in the period in which the revisions are determined.

In the normal course of its business and consistent with industry practices, the Company grants credit to its clients without requiring collateral. Concentrations of credit risk is the risk that, if the Company extends a significant portion of its credit to clients in a specific geographic area or industry, the Company may experience disproportionately high levels of default, if those clients are adversely affected by factors particular to their geographic area or industry. Concentrations of credit risk relative to trade receivables are limited due to the Company's client base. The Company evaluates the past due status of its trade receivables based on contractual terms.

Fair Value of Financial Instruments

STV's financial instruments consist primarily of cash and cash equivalents, trade receivables, investments in U.S. treasury bills, trade payables, long-term debt and an interest rate swap agreement. Cash and cash equivalents include all highly liquid investments with maturities of three months or less when purchased. The interest rate swap agreement is recorded at fair value. The carrying amount of the Company's long-term debt and revolving credit facility approximates fair value because the interest rates are based upon variable reference rates. The book values of the remaining financial instruments approximate their respective fair values because of the short-term maturities of these instruments.

Depreciation and Amortization

Depreciation and amortization is computed primarily on the straight-line method over the estimated useful lives of the assets ranging from three to seven years, or the life of the lease. Purchased software, included in other assets, is amortized over an estimated useful life of three years.

New Accounting Pronouncement

In January 2003, the Financial Accounting Standards Board issued Interpretation No. 46, *Consolidation of Variable Interest Entities, an interpretation of Accounting Research Bulletin No. 51* (the Interpretation). The Interpretation requires the consolidation of entities in which an enterprise absorbs a majority of the entity's expected losses, receives a majority of the entity's expected residual returns, or both, as a result of ownership, contractual or other financial interests in the entity. Currently, entities are generally consolidated by an enterprise when it has a controlling financial interest through ownership of a majority voting interest in the entity.

The Company operates through several joint ventures, and records its proportional share of the respective ventures' assets, liabilities, revenues and expenses related to the Company's activities in the venture.

The Company is currently evaluating the effects of the issuance of the Interpretation, effective in 2004 for the Company, on the accounting for its ownership interest in existing joint ventures.

2. Costs and Estimated Profits of Uncompleted Contracts in Excess of Related Billings

Costs and estimated profits of uncompleted contracts at September 30, 2003, and 2002, respectively, are as follows:

	2003	2002
Costs and estimated earnings on uncompleted contracts	\$ 815,443,000	\$ 776,315,000
Less billings to date	<u>804,847,000</u>	<u>771,120,000</u>
	\$ 10,596,000	\$ 5,195,000

Costs and estimated profits of uncompleted contracts are included in the accompanying balance sheets under the following captions:

	2003	2002
Costs and estimated profits of uncompleted contracts in excess of related billings	\$ 18,740,000	\$ 16,172,000
Billings on uncompleted contracts in excess of related costs and estimated profits	<u>8,144,000</u>	<u>10,977,000</u>
	\$ 10,596,000	\$ 5,195,000

Included in accounts receivable are retainages related to uncompleted contracts in the amounts of \$7,665,000 and \$6,814,000 at September 30, 2003, and 2002, respectively. The collection of retainages generally coincides with final project acceptance.

3. Property and Equipment

Property and equipment, at cost, are as follows:

	2003	2002
Land	\$ 0	\$ 54,000
Equipment	3,553,000	3,465,000
Furniture and fixtures	3,391,000	3,262,000
Leasehold improvements	<u>2,390,000</u>	<u>2,335,000</u>
	9,334,000	9,116,000
Less:		
Accumulated depreciation and amortization	<u>7,340,000</u>	<u>6,308,000</u>
	<u>\$ 1,994,000</u>	<u>\$ 2,808,000</u>

4. Long-term Debt

The Company has a term loan and an \$8 million revolving line of credit facility. The term loan, payable over a five-year period, was used to finance the company's 2001 merger discussed in Note 1. The revolving line of credit matures August 31, 2006, and will be used to fund future working capital requirements. The revolving line of credit includes a \$4 million subfacility for the issuance of standby and commercial letters of credit. At September 20, 2003, approximately \$2,084,000 letters of credit are outstanding. The loans are secured by the Company's assets.

The term loan is payable in quarterly principal installments of \$964,000, with a final payment due October 1, 2006, of all remaining principal. The term loan is subject to mandatory prepayments upon sales of assets and property outside of the ordinary course of business; the issuance of additional equity interests in STV or any of its subsidiaries; the receipt of certain extraordinary payments (e.g., tax and insurance refunds) and excess cash flow, as defined.

At the option of STV, the revolver and approximately half of the term loan may bear interest at either rates based upon the London Interbank Offered Rate ("LIBOR") or the bank's prime rate plus an applicable margin based on the ratio of total funded debt to earnings before interest, taxes, depreciation and amortization on a consolidated basis. A commitment fee is due based on the average unused portion of the revolving line of credit. Such commitment fee will range from .425 percent to .5 percent per annum. A fee will also be paid based on letters of credit outstanding, payable quarterly in an amount equal to 1.5 percent per annum.

The facility contains financial and other restrictive covenants including minimum consolidated capital funds, interest expense coverage ratio, fixed charge coverage ratio, and funded debt to consolidated earnings before interest, taxes, depreciation and amortization. The company was in compliance with all financial covenants at September 30, 2003, and for the year then ended.

The Company deferred certain bank fees in 2001 amounting to \$680,000 in connection with the facility and is amortizing such costs over the term of the facility. Unamortized bank fees included in other assets at September 30, 2003, total \$397,000.

Long-term debt consists of the following:

	2003	2002
Term loan payable in quarterly installments of \$964,000, plus mandatory prepayments, if applicable, with remaining principal due October 1, 2006, (interest rate of 3.4% and 4.3% at September 30, 2003, and 2002, respectively)	\$ 16,674,000	\$ 22,218,000
Less: Current portion	<u>3,857,000</u>	<u>3,965,000</u>
	\$ 12,817,000	\$ 18,253,000

Interest paid during 2003, 2002 and 2001 totaled \$1,164,000, \$1,383,000 and \$16,000, respectively.

Annual maturities of long-term debt are as follows:

<i>Year ending September 30</i>	
2004	\$ 3,857,000
2005	3,857,000
2006	3,857,000
2007	5,103,000
Total	\$ 16,674,000

5. Derivative Financial Instruments

The Company accounts for its derivative financial instruments in accordance with SFAS No. 149, "Amendment of Statement 133 on Derivative Instruments and Hedging Activities." This standard requires that all derivative financial instruments, such as interest rate swap agreements, be recognized in the financial statements and measured at fair value. The Company does not hold or issue derivative financial instruments for trading or speculative purpose.

As required by the Company's term loan, the Company entered into an interest rate swap agreement on November 30, 2001, that effectively converts a portion of its floating rate debt to a fixed rate. Under the interest rate swap agreement, the Company pays an amount equal to the specified fixed-rate of interest of 4.43 percent on the notional principal amount, adjusted quarterly, through October 1, 2006, and receives a variable rate of interest equal to the three-month LIBOR on the same notional principal amount (\$8,717,000 at September 30, 2003). No other cash payments are made unless the contract is terminated prior to maturity. As of September 30, 2003, the Company has recorded a long-term liability and accumulated other comprehensive loss of \$400,000 that represents the fair value of the interest rate swap agreement.

6. Income Taxes

Effective October 1, 2001, the Company elected to be taxed as an S Corporation for federal and certain state income tax purposes. Accordingly, the stockholder will assume the obligations and benefits relative to the federal and applicable state income taxes attributable to the Company's operations. The Company may incur certain tax liabilities related to "built-in gains" that were present as of the election date and has recorded a liability for such contingency. Deferred taxes have been adjusted to reflect the impact of the S Corporation election on October 1, 2001. The impact was an increase in the results of operations in fiscal 2002 and increased stockholder's equity of \$1,100,000.

Income tax expense (benefit) consists of the following:

	2003	2002	2001
Current:			
Federal	\$ 349,000	\$ 340,000	\$ (2,464,000)
State and local	474,000	517,000	(1,313,000)
Total current	\$ 823,000	\$ 857,000	\$ (3,777,000)
Deferred:			
Federal	\$ (349,000)	\$ (1,154,000)	\$ 2,717,000
State and local	(127,000)	(350,000)	1,083,000
Net operating loss carryforwards	0	0	(425,000)
Total deferred	\$ (476,000)	\$ (1,504,000)	\$ 3,375,000
Total income tax expense (benefit)	\$ 347,000	\$ (647,000)	\$ 402,000

Income tax expense in 2003 relates to certain states that do not recognize S Corporation status. An income tax benefit in 2002 was recorded primarily due to the reversal of certain net deferred tax liabilities of approximately \$1,100,000 related to the Company's election of S Corporation status effective October 1, 2001, offset by state income taxes. Income tax expense in 2001 resulted primarily due to the impact of certain expenses that were not deductible for federal and state tax purposes.

Temporary differences between financial statement and tax reporting that give rise to significant portions of the deferred tax assets consist primarily of certain accruals, which are not currently deductible for tax purposes; and state net operating loss carryforwards. Temporary differences between financial statement and tax reporting that give rise to significant portions of the deferred tax liabilities consist primarily of retainages in accounts receivable.

A summary of deferred tax assets and liabilities is as follows:

	2003	2002
Total deferred tax assets	\$ 1,086,000	\$ 2,157,000
Total deferred tax liabilities	(1,101,000)	(2,648,000)
Valuation allowance	(516,000)	(516,000)
Net deferred tax liability	\$ (531,000)	\$ (1,007,000)

As of September 30, 2003, the Company has net operating loss carryforwards in certain states of approximately \$5,700,000 for income tax purposes that expire in various years through 2011. A valuation allowance has been established at September 30, 2003 and 2002 as it is most likely that these carryforward benefits will not be realized due to the Company's election of S Corporation status effective October 1, 2001.

STV made income tax payments of \$1,154,000, \$267,000 and \$2,328,000 in 2003, 2002 and 2001, respectively. The Company received \$35,000, \$4,004,000 and \$128,000 in income tax refunds in 2003, 2002 and 2001, respectively.

7. Commitments and Contingencies

STV is involved in various legal proceedings arising in the ordinary course of business. In addition, a garnishment proceeding was commenced in March 1994 against the Company's professional liability carrier. The plaintiff-creditor seeks to enforce an approximate \$4,000,000 judgment entered in New York against an entity whose assets and liabilities were partially acquired by the Company in 1987. The Company intervened in that proceeding and, along with its professional liability carrier, denies that there is any coverage for the loss under the professional liability policy. The

Company and its professional liability insurer intend to vigorously pursue defenses available to them. The Company's management believes that the final resolution of its litigation matters will not have a material adverse effect on STV's financial statements.

In the normal course of business, the Company is subject to certain contractual guarantees. Generally, such guarantees relate to project schedules and performance. The Company's management believes that such guarantees should not have a material adverse effect on the consolidated financial statements.

STV has noncancellable lease agreements for the use of office space and equipment. These agreements expire on varying dates and in some instances contain renewal options. In addition to the base rental costs, occupancy lease agreements generally provide for rent escalations resulting from increased assessments for real estate taxes and other charges. Future minimum lease payments under noncancellable leases with remaining terms of more than one year are due as follows:

<i>Operating Leases</i>	
2004	\$ 6,939,000
2005	6,508,000
2006	6,049,000
2007	5,424,000
2008	4,948,000
Thereafter	26,869,000
Total minimum lease payments	\$ 56,737,000

Rental expense under operating leases amounted to \$6,973,000, \$6,976,000 and \$5,732,000 in 2003, 2002 and 2001, respectively.

8. Stock Plans

On October 1, 1981, STV initiated an Employee Stock Ownership Plan (ESOP) that covers substantially all of its employees. Contributions to the plan are based on a percentage of eligible salaries. Expense for the years 2003, 2002 and 2001 was \$3,395,000, \$2,537,000 and \$1,547,000, respectively. The expense for 2003 and 2002 includes \$677,000 and \$626,000 of 401K employer match that was converted to the ESOP at the discretion of the Board of Directors. The liability is funded through either the issuance of shares of Company stock (at fair market value on date of issuance) upon approval of the trustee or a cash payment. The Company will fund the 2003 contribution with cash payments throughout calendar years 2003 and 2004. At September 30, 2003, each share held by the ESOP is valued at \$12.80.

In connection with the Company's merger transaction described in Note 1, holders of options as of the consummation date exercised such options through either cashless exercises and then a cash payment equal to \$11.25 per share for the net shares issued, or the receipt of a cash payment equal to \$11.25 less the option exercise price, as approved by the Board of Directors. Compensation expense of \$6,580,000 was recorded related to these exercises. No options remain outstanding and the Company's 1985 and 1995 Stock Option Plans have since been terminated.

The Compensation Committee of the Board of Directors approved a Stock Appreciation Rights Plan (the SAR Plan) effective October 1, 2002. The SAR Plan is administered by the Compensation Committee. Participants in the SAR Plan are granted units where each unit shall be deemed to be equivalent in value to one share of the Company's common stock. The maximum number of units that may be granted under the SAR plan is 477,010. As of September 30, 2003, 238,000 units have been granted at an exercise price of \$10.83 per unit. For the year ended September 30, 2003, the Company recognized expense related to the SAR's of \$278,000.

9. Healthcare, Postretirement Benefits and Pension Plans

STV sponsors a defined benefit healthcare plan that provides medical and other benefits to all current employees and their families. In 2001, the Company established a Voluntary Employees Beneficiary Association (VEBA) Trust. A \$4 million tax-deductible contribution was made to the trust in September 2001. This funding was used to pay 2002 healthcare costs.

STV also sponsors a defined benefit healthcare plan that provides postretirement medical benefits to all current and retired employees and their spouses upon attaining age 65, or age 55 with 10 years of service. The plan was amended to be non-contributory for officers effective July, 2000. For other retirees, the plan is contributory with retiree contributions adjusted annually, and contains other cost-sharing features such as deductibles and coinsurance. The accounting for the plan anticipates future cost-sharing changes to the written plan that are consistent with the Company's expressed intent to increase the retiree contribution rate annually for the expected general inflation rate for that year.

The following table presents the plan's status reconciled with amounts recognized in the Company's balance sheet (current and long-term):

	2003	2002
Changes in plan assets:		
Fair value of plan assets at beginning of year	\$ 0	\$ 0
Employer contributions	177,000	158,000
Benefits paid	<u>(177,000)</u>	<u>(158,000)</u>
Fair value of plan assets at year end	\$ 0	\$ 0
Accumulated postretirement benefit obligation	\$ (3,774,000)	\$ (3,179,000)
Unrecognized net loss	880,000	405,000
Unrecognized prior service costs	273,000	409,000
Unrecognized transition obligation	<u>559,000</u>	<u>615,000</u>
Accrued postretirement benefit cost	\$ (2,062,000)	\$ (1,750,000)

Net periodic postretirement benefit costs include the following components:

	2003	2002	2001
Service cost	\$ 73,000	\$ 52,000	\$ 23,000
Interest cost	221,000	211,000	184,000
Amortization of transition obligation over 20 years	56,000	56,000	56,000
Amortization of unrecognized prior service service cost	136,000	136,000	136,000
Amortization of unrecognized gain	<u>4,000</u>	<u>0</u>	<u>(19,000)</u>
Net periodic postretirement benefit cost	\$ 490,000	\$ 455,000	\$ 380,000

The weighted-average annual assumed rate of increase in the per capita cost of covered benefits (i.e., health care cost trend rate) is 11.2 percent for 2003 (12 percent for 2002 and 9 percent for 2001) and is assumed to decrease gradually to 5.5 percent in 2010 and remain at that level thereafter. The health care cost trend rate assumption has a significant effect on the amounts reported. For example, increasing the assumed health care cost trend rates by one percentage point in each year would increase the accumulated postretirement benefit obligation as of September 30, 2003, by \$516,000, and the aggregate of the service and interest cost components of net periodic postretirement benefit cost for 2003, 2002 and 2001 by \$42,000, \$40,000 and \$34,000, respectively.

The weighted-average discount rate used in determining the accumulated postretirement benefit obligation was 6.0 percent at September 30, 2003, and 7.25 percent at September 30, 2002. The decrease in the discount rate increased the accumulated postretirement benefit obligation by approximately \$507,000.

STV has a defined contribution savings and investment plan covering substantially all employees. Employees may contribute up to 15 percent of base salary to the plan, excluding highly compensated employees, which are limited to 9 percent. The plan, as amended, includes a company match at the discretion of the Board of Directors. The Company's cost for this plan was \$677,000, \$626,000 and \$557,000 in 2003, 2002 and 2001, respectively. However, the amounts for 2003 and 2002 have been converted to the ESOP at the discretion of the Board of Directors, as disclosed in Note 8.

10. Major Customers

The percentage of total revenues derived from contracts with the United States government for fiscal years 2003, 2002 and 2001 and was 6 percent, 3 percent and 5 percent respectively.

11. Deferred Compensation

Deferred compensation consists of the following:

	2003	2002
Deferred compensation liability payable in fixed monthly installments of \$11,542, which includes interest at 16 percent through September 2006	\$ 328,000	\$ 407,000
Executive deferred compensation liability for certain executives, with annual interest at 1 percent above the prime rate as of each November 1, payable upon the termination of employment or approval of the Board of Directors	202,000	468,000
Non-qualified deferred compensation plan liability	<u>2,131,000</u>	<u>878,000</u>
	2,661,000	1,753,000
Less: Current portion	<u>141,000</u>	<u>134,000</u>
	\$ 2,520,000	\$ 1,619,000

The fair value of the Company's deferred compensation liability payable through September 2006 is \$379,000. The Company has funded \$1,690,000 of the total deferred compensation liability. Such funded amounts are included in other assets on the accompanying consolidated balance sheets.

Interest paid on deferred compensation during 2003, 2002 and 2001 amounted to \$75,000, \$112,000 and \$137,000, respectively.

Future annual cash payments, including interest, of the deferred compensation arrangements are as follows:

	Year ending September 30
2004	\$ 199,000
2005	460,000
2006	185,000
2007	38,000
2008	21,000
Thereafter	<u>1,933,000</u>
Total	\$ 2,836,000

Report of Independent Auditors

Stockholder and Board of Directors

STV Group, Incorporated

We have audited the accompanying consolidated balance sheets of STV Group, Incorporated, as of September 30, 2003 and 2002, and the related consolidated statements of operations, stockholder's equity, and cash flows for each of the three years in the period ended September 30, 2003. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of STV Group, Incorporated, as of September 30, 2003 and 2002, and the consolidated results of its operations and its cash flows for each of the three years in the period ended September 30, 2003 in conformity with accounting principles generally accepted in the United States.

Ernst & Young LLP

Harrisburg, Pennsylvania

October 31, 2003 except for

the fifth paragraph of Note 8, as to
which the date is December 10, 2003

**ATTACHMENT A
CONFLICT OF INTEREST
DISCLOSURE STATEMENT**

Parsons Brinckerhoff Quade & Douglas, Inc. certifies that it has no real or perceived conflict of interest
in relation to services of the MBTA contract agreement for Engineering Services for the Mid-Life
Overhaul of Bi-Level Coaches – V61PS02 and furthermore to take any action or supply any
information necessary should a conflict of interest arise.

Authorized Signature:



Title or Position:

Vice President

Date:

November 16, 2006

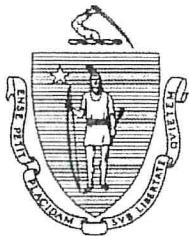
**ATTACHMENT C
SCHEDULE OF PARTICIPATION
OF
DISADVANTAGED BUSINESS ENTERPRISE**

Engineering Services for
Mid-Life Overhaul of
Project No. Bi-Level Coaches
Location: Boston, MA
V61PS02

Name of Respondent: Parsons Brinckerhoff Quade & Douglas, Inc.

Name of Disadvantaged Business	Address	Type of Work and Contract Items or Parts Thereof to be Performed	Projected Start and Finish Date for Work	Agreed Price
VPEngineering, Inc.	720 Glen Royal Drive Roswell, GA 30076	Vehicle structure inspection and on-site vehicle testing	August 2008 through May 2011	\$1,373,000

A copy of the DBE's most recent certification and an original affidavit must be attached to this schedule.



COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF BUSINESS AND TECHNOLOGY STATE OFFICE OF MINORITY AND WOMEN BUSINESS ASSISTANCE

Massachusetts Transportation Building
Ten Park Plaza, Suite 3740, Boston, MA 02116

Internet: <http://www.somwba.state.ma.us>

E-Mail: webmaster@somwba.state.ma.us

TELEPHONE:
(617) 973-8692

FACSIMILE:
(617) 973-8637

MITT ROMNEY
GOVERNOR

KERRY HEALEY
LIEUTENANT GOVERNOR

RENEE FRY
DBT DIRECTOR

ROBERT L. FORTES
EXECUTIVE DIRECTOR

January 27, 2006

Mr. Vasant Patil
V P ENGINEERING INC
720 Glen Royal Drive
Roswell, GA 30076

Dear Mr. Patil:

The State Office of Minority and Women Business Assistance (SOMWBA), acting as certification agent for the Massachusetts Highway Department (MHD), the Massachusetts Bay Transportation Authority (MBTA), the Massachusetts Port Authority (MassPort), the Massachusetts Turnpike Authority/Central Artery/Tunnel (MTA/CA/T) and the Massachusetts Aeronautics Commission (MAC) is pleased to notify you that your company has been renewed as a disadvantaged business enterprise (DBE). Your company continues to be assigned NAICS Code(s) 541330 with the certified business description of, **RAILWAY ROLLING STOCK ENGINEERING AND INSPECTION, CONSULTING SERVICES: TRANSIT CARS INCLUDING COMMUTER CARS AND LOCOMOTIVES.**

Your firm's designation as a DBE will appear in the Massachusetts Central Register and the DBE Certified Business Listing of eligible firms for federal-aid transportation projects.

As a DBE, you must inform SOMWBA in writing of any change in circumstances affecting your ability to meet size, disadvantaged status, ownership, control requirements or any material change in the information provided in your application form. Changes in management responsibility among members of a limited liability company are covered by this requirement. You must attach supporting documentation describing in detail the nature of such changes. The notice must take the form of an affidavit sworn to by the owners of the firm before a person who is authorized by state law to administer oaths or of an un-sworn declaration executed under penalty of perjury of the laws of the United States. You must provide the written notification within 30 days of the occurrence of the change. If you fail to make timely notification of such a change, you will be deemed to have failed to cooperate under 49 CFR 26.109(c). SOMWBA reserves the right to monitor, perform random spot checks, revoke the firm's certification if it no longer meets the certification criteria or re-evaluate the firm due to any changes in the DOT policies affecting interpretation/application of regulatory eligibility standards.

To renew your firm's DBE certification and if it continues to meet the applicable criteria, on or before your firm's certification anniversary date of **January 31, 2007**, and each year thereafter, please send SOMWBA the following documents:

- (1) Please complete the attached No Change Affidavit. SOMWBA will provide the affidavit in reminder letter annually.
- (2) A signed copy of your company's, and all of its affiliates', U.S. Tax Returns including all schedules and attachments for the year(s) indicated.
- (3) Sole proprietors, a signed copy of your complete tax return including the Schedule C. for the year(s) indicated.
- (4) Personal Tax Returns for the last two (2) years.
- (5) All company financial statements for the year(s) indicated.
- (6) A notarized statement of the number of full-time and part-time employees (including owner) for each year indicated.
- (7) Completed Personal Financial Statement and Statement of Disadvantage Forms.

If you have changed your company name or address, please notify Ms. Nedra D. White, in writing on the company's letterhead in order to update your state vendor file.

During the period of your certification, if you have further questions regarding annual reviews, please contact Ms. Nedra D. White, SOMWBA/DBE Renewal Specialist, at (617)973-8648.

Very truly yours,

Robert 2 

Robert L. Fortes
Certification Committee

CC1577 EG
Fidbernu

ATTACHMENT D
DBE AFFIDAVIT

No. _____ Form C No. _____

MBTA Contract
V61 PS02

State of Georgia (Date 11/6/06)

County of Fulton S.S.

The undersigned being duly sworn, deposes and says that he/she is the
President

(sole owner; partner; president; treasurer; or other duly authorized official of a corporation)

of VP Engineering, Inc.
(Name of DBE)

and certifies that since the date of its certification by

SOMWBA

(SOMWBA or out-of-state certification agency)

The certification has not been revoked nor has it expired nor has there been any
change in the minority status of

VP Engineering, Inc.
(Name of DBE)



[Signature] President
(Signature and Title of
Person Making Affidavit)

Sworn to before me this 11th 11/6/06 day of NOVEMBER, 20 06.

[Signature]
(Notary Public)

Note: The Bidder must attach the DBE's most recent certification letter or document to this affidavit.

**ATTACHMENT F
DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
LETTER OF INTENT**

Form B

MBTA Contract No. V61PS02
Description: Engineering services for
the mid-life overhaul of
Bi-Level coaches

To: STV/PB
(Name of Prime Respondent)

The undersigned intends to perform work in connection with the above project as (check one):

☐ individual ☒ DBE ☐ partnership ☐ joint venture

The Disadvantaged Business status of the undersigned is confirmed

- (a) on the reference list of Disadvantaged Business Enterprises dated _____ or
(b) on the attached Disadvantaged Business Enterprise identification Statement.

The undersigned is prepared to perform the following work in connection with the above project.
(Specify in detail particular work items or parts thereof to be performed):

At the following price: _____

You have projected the following commencement date for such work, and the undersigned is projecting completion of such work as follows:

Items	Projected Commencement Date	Projected Completion Date
<u>Vehicle structure</u>	<u>August 2008</u>	<u>May 2011</u>
<u>inspection and on-</u>	_____	_____
<u>site vehicle testing</u>	_____	_____

The above work will not be sublet to a non-Disadvantaged Business Enterprise at any tier. The undersigned will enter into a formal agreement for the above work with you, conditioned upon your execution of a contract with the MBTA.

Date 11/6/06 VP Engineering, Inc.
Name of Disadvantaged Business Enterprise

By Authorized Representative

[Signature]

Vasant Patil
President

**ATTACHMENT G
GOVERNMENT-WIDE DEBARMENT
AND SUSPENSION**

By signing and submitting this bid or proposal, the prospective lower tier participant is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Authority may pursue available remedies, including suspension and/or debarment.
2. The prospective lower tier participant shall provide immediate written notice to the Authority if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact the Authority for assistance in obtaining a copy of those regulations.
4. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Authority.
5. The prospective lower tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.
7. Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
8. Except for transactions authorized under Paragraph 4 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, the Authority may pursue available remedies including suspension and/or debarment.

**"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transaction"**

The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

When the prospective lower tier participant is unable to certify to the statements in this certification, such prospective participant shall attach an explanation to this proposal.



Name

Parsons Brinckerhoff Quade & Douglas, Inc.

Firm

November 16, 2006

Date

ATTACHMENT H
CERTIFICATION OF RESTRICTIONS ON LOBBYING
APPENDIX A, 49 CFR PART 20--CERTIFICATION REGARDING LOBBYING

The undersigned [Engineer] certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65. to be codified at 2 U.S.C. 1601, *et seq.*)]

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

Parsons Brinckerhoff Quade &

The Engineer, Douglas, Inc., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Engineer understands and agrees that the provisions of 31 U.S.C. A 3801, *et seq.*, apply to this certification and disclosure, if any.

Signature of Engineer's Authorized Official

Vice President Name and Title of Engineer's Authorized Official

November 16, 2006

Date

**ATTACHMENT I
CERTIFICATION OF COMPLIANCE
CHILD CARE
REGULATION 102 CMR 12.00**

The undersigned hereby certifies that, if awarded this contract, he/she will comply, to the extent required by law, with Section 7 of Massachusetts General Law, Chapter 521 of the Acts of 1990, as amended by Chapter 329 of the Acts of 1991 and the Massachusetts Executive Office of Health and Human Services – Office of Children – Regulation 102 CMR 12.00.

Signature:
Authorized Representative



Position: Vice President

Company Name: Parsons Brinckerhoff Quade & Douglas, Inc.

Date: November 16, 2006

ATTACHMENT J
CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or organization, entity, or group of individuals.

Signature: 

Position: Vice President

Company Name: Parsons Brinckerhoff Quade & Douglas, Inc.

Date: November 16, 2006


ATTACHMENT K FINANCIAL RESPONSIBILITY QUESTIONNAIRE

Paragraph 7. (h) of the Federal Transit Administration Circular 4220.1D requires the MBTA to determine consultants' financial responsibility prior to awarding a contract. In consideration of this requirement, please complete the form below:

Please attach to this form certified financial statements for the last three fiscal years. If certified financial statements are not available, provide financial statements sworn to by the firm's Chief Financial Officer.

The undersigned hereby certifies under penalty of perjury that to the best of his/her knowledge, the following information is true and accurate.

		(\$ in 000s)			(\$ in 000s)		
Current Ratio:		<u>309,660</u>	)	<u>164,938</u>	=	<u>1.88</u>	
		Current Assets		Current Liabilities			
Return on Assets:							
Year 1: 2004		<u>17,048</u>	)	<u>354,597</u>	=	<u>4.8</u>	
		Operating Income		Total Assets			
Year 2: 2003		<u>23,930</u>	)	<u>336,979</u>	=	<u>7.1</u>	
		Operating Income		Total Assets			
Year 3: 2002		<u>27,419</u>	)	<u>328,165</u>	=	<u>8.36</u>	
		Operating Income		Total Assets			
Operating Profit:							
Year 1: 2004		<u>17,048</u>	)	<u>275,842</u>	=	<u>6.18</u>	
		Operating Income		Net Revenue			
Year 2: 2003		<u>23,930</u>	)	<u>254,822</u>	=	<u>9.39</u>	
		Operating Income		Net Revenue			
Year 3: 2002		<u>27,419</u>	)	<u>237,077</u>	=	<u>11.57</u>	
		Operating Income		Net Revenue			
Return on Equity:							
Year 1: 2004		<u>17,048</u>	)	<u>162,156</u>	=	<u>10.51</u>	
		Operating Income		Total Net Assets			
Year 2: 2003		<u>23,930</u>	)	<u>149,714</u>	=	<u>15.98</u>	
		Operating Income		Total Net Assets			
Year 3: 2002		<u>27,419</u>	)	<u>136,447</u>	=	<u>20.1</u>	
		Operating Income		Total Net Assets			
		(Equity)					



Authorized Signature

SVP/Direct of Government Contracts 11/30/2005

Title

Date

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC. AND CERTAIN SUBSIDIARIES
CONSOLIDATED BALANCE SHEET
October 28, 2005
(\$ in Thousands)
(Unaudited)

Assets

Current Assets:

Cash and Cash Equivalents	\$ 1,966
Accounts Receivable - Billed	134,279
Unbilled Accounts Receivable	60,149
Intercompany Accounts Receivable	115,751
Joint Ventures and Other Investments	1,337
Other Current Assets	9,042
Total Current Assets	<u>322,524</u>

Property and Equipment (Net)	13,093
Other Non-current Assets	33,588

Total Assets	<u><u>\$ 369,205</u></u>
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Liabilities and Stockholder's Equity

Current Liabilities:

Accounts Payable	\$ 46,917
Accrued Expenses	14,454
Other Current Liabilities	1,019
Advances and Billings in Excess of Cost	40,524
Est. Loss on Uncompleted Contracts	683
Income Taxes - Deferred	55,985
Total Current Liabilities	<u>159,582</u>

Other Liabilities	<u>33,661</u>
Total Liabilities	<u>193,243</u>

Stockholder's Equity:

Common Stock	676
Treasury Stock	(2,082)
Additional Paid-In Capital	1,255
Retained Earnings	176,278
Foreign Currency Translation	(165)
Total Stockholder's Equity	<u>175,962</u>

Total Liabilities and Stockholder's Equity	<u><u>\$ 369,205</u></u>
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Certified to be correct:



Patrick G. Sheridan
Senior Vice President and Controller
January 26, 2006

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC. AND CERTAIN SUBSIDIARIES
CONSOLIDATED STATEMENT OF INCOME

October 28, 2005

(\$ in Thousands)

(unaudited)

Contract Revenue	\$ 692,925
Ind. Joint Venture Earnings	<u>2,193</u>
Total Revenues	695,118
Contract and Subcontractor Costs	<u>414,303</u>
	280,815
General and Administrative Expenses	<u>264,194</u>
Operating Income	16,621
Interest Expense	(144)
Interest and Other Income	569
Income Tax Provision	<u>(6,998)</u>
Net Income	<u>\$ 10,048</u>

Certified to be correct:



Patrick G. Sheridan
Senior Vice President and Controller
January 26, 2006

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC. AND CERTAIN SUBSIDIARIES
CONSOLIDATED BALANCE SHEET

October 29, 2004

(\$ in Thousands)

(Unaudited)

Assets

Current Assets:

Cash and Cash Equivalents	\$ 2,892
Accounts Receivable - Billed	126,005
Unbilled Accounts Receivable	54,874
Intercompany Accounts Receivable	119,720
Joint Ventures and Other Investments	1,169
Other Current Assets	5,000
Total Current Assets	<u>309,660</u>

Property and Equipment (Net)	11,244
Investment in Real Estate Activities and Development Corporation	6,614
Other Non-current Assets	27,079

Total Assets	<u><u>\$ 354,597</u></u>
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Liabilities and Stockholder's Equity

Current Liabilities:

Accounts Payable	\$ 51,185
Accrued Expenses	12,660
Other Current Liabilities	985
Advances and Billings in Excess of Cost	34,189
Est. Loss on Uncompleted Contracts	657
Income Taxes - Current	16,047
Income Taxes - Deferred	49,215
Total Current Liabilities	<u>164,938</u>

Other Liabilities	27,503
Total Liabilities	<u>192,441</u>

Stockholder's Equity:

Common Stock	675
Treasury Stock	(2,082)
Additional Paid-In Capital	1,255
Retained Earnings	162,655
Foreign Currency Translation	(347)
Total Stockholder's Equity	<u>162,156</u>

Total Liabilities and Stockholder's Equity	<u><u>\$ 354,597</u></u>
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Certified to be correct:



Patrick G. Sheridan

Senior Vice President and Controller

January 21, 2005

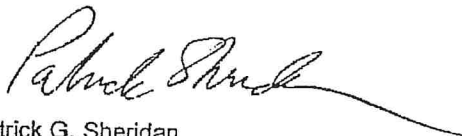
PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC. AND CERTAIN SUBSIDIARIES
CONSOLIDATED STATEMENT OF INCOME

October 29, 2004

(\$ in Thousands)
(unaudited)

Contract Revenue	\$ 725,338
Ind. Joint Venture Earnings	<u>1,971</u>
Total Revenues	727,309
Contract and Subcontractor Costs	<u>451,467</u>
	275,842
General and Administrative Expenses	<u>258,794</u>
Operating Income	17,048
Interest Expense	(16)
Interest and Other Income	(5,003)
Income Tax Provision	(3,724)
Net Income	<u><u>\$ 8,305</u></u>

Certified to be correct:



Patrick G. Sheridan
Senior Vice President and Controller
January 21, 2005

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC. AND CERTAIN SUBSIDIARIES
CONSOLIDATED BALANCE SHEET
OCTOBER 31, 2003
(\$ in Thousands)

Assets

Current Assets:

Cash and Cash Equivalents	\$ 1,589
Accounts Receivable - Billed	104,374
Unbilled Accounts Receivable	64,898
Intercompany Accounts Receivable	124,155
Joint Ventures and Other Investments	1,365
Other Current Assets	5,146
Total Current Assets	<u>301,527</u>

Property and Equipment (Net)	8,731
Investment in Real Estate Activities and Development Corporation	6,494
Other Non-current Assets	20,227

Total Assets	<u><u>\$ 336,979</u></u>
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Liabilities and Stockholder's Equity

Current Liabilities:

Accounts Payable	\$ 55,502
Accrued Expenses	10,066
Other Current Liabilities	2,715
Advances and Billings in Excess of Cost	35,963
Est. Loss on Uncompleted Contracts	1,225
Income Taxes - Current	15,415
Income Taxes - Deferred	46,172
Total Current Liabilities	<u>167,058</u>

Other Liabilities	<u>20,207</u>
Total Liabilities	<u>187,265</u>

Stockholder's Equity:

Common Stock	303
Additional Paid-In Capital	0
Retained Earnings	149,777
Foreign Currency Translation	(366)
Total Stockholder's Equity	<u>149,714</u>

Total Liabilities and Stockholder's Equity	<u><u>\$ 336,979</u></u>
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Certified to be correct:



Patrick G. Sheridan

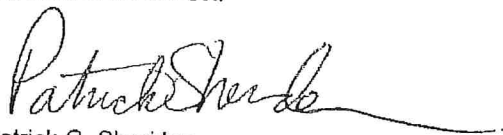
Senior Vice President and Controller

February 9, 2004

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC. AND CERTAIN SUBSIDIARIES
CONSOLIDATED STATEMENT OF INCOME
OCTOBER 31, 2003
(\$ in Thousands)

Contract Revenue	\$ 719,167
Ind. Joint Venture Earnings	<u>2,253</u>
Total Revenues	721,420
Contract and Subcontractor Costs	<u>466,598</u>
	254,822
General and Administrative Expenses	<u>230,892</u>
Operating Income	23,930
Interest Expense	(21)
Interest and Other Income	(3,506)
Income Tax Provision	<u>(7,127)</u>
Net Income	<u>\$ 13,276</u>

Certified to be correct:



Patrick G. Sheridan
Senior Vice President and Controller
February 9, 2004

Appendix 2 Resumes

William F. Matts, P.E.

Principal-in-Charge

Mr. Matts, STV's Executive Vice President responsible for the Transportation and Infrastructure Division, is an experienced project director who brings exceptional qualifications in the planning and design for rail yards and shops. His more than 35 years of experience cover evaluation of rail systems; development of short- and long-term maintenance and storage facilities requirements; operations, alternatives, economic/financial (capital and operating cost), management and engineering analyses; market research and analysis; site analysis and selection; ridership projections; fare and passenger flow analyses; train scheduling; maintenance facilities placement; development of staffing requirements; and conceptual engineering of rail system components. He is highly qualified in the areas of project control, budgeting, schedule adherence, client liaison, and negotiations. He is also thoroughly experienced with the requirements of fulfilling task-order type contracts.

Project Experience

MBTA Acquisition of New Diesel-Electric Locomotives and Bi-Level Passenger Coaches - Principal-in-Charge

Holding overall responsibility for the acquisition of new rail vehicles to accommodate increased service on the Greenbush Line. Phase I of the project includes preparation of technical specifications, pre-bid support, and bid evaluations related to the acquisition of approximately 28 bi-level coaches.

MBTA F40PHM-2C Locomotive Overhaul - Principal-in-Charge

Holding overall responsibility over the engineering services for the complete overhaul and upgrade of 12 F40PHM-2C locomotives that have been in service for the MBTA since they were first built in 1990 and 1991 by Motive Power Inc. (then Morrison Knudsen Corp.). The overhaul consists of the complete teardown and rebuilding of the locomotives; all subcomponents and subsystems will be rebuilt in kind. Overhauled systems include the 3-phase, 480-V head-end power (HEP) system; brakes; main engines; traction motors and their main generators; trucks; cooling systems, including fans, radiators, and pumps; air intake systems; vehicle controls; and all fixtures and furniture in the cab interior.

MBTA New F-40PH-2 Passenger Locomotives - Principal-in-Charge

Oversaw a full range of support to the MBTA for the acquisition of new passenger locomotives including specification preparation, construction monitoring and design review for F-40PH-2 locomotives that were manufactured by EMD. STV provided preliminary and final engineering design services for 13 new commuter rail passenger locomotives for the Massachusetts Bay Transportation Authority (MBTA). The contract for manufacturing the equipment was awarded to General Motors Electro-Motive Division.

Education

Master of Business
Administration, Finance;
New York University

Master of Science,
Operations Research;
Columbia University

Bachelor of Engineering,
Industrial Engineering; Pratt
Institute

Professional

Registrations

Professional Engineer; New
Jersey

Memberships

Institute of Industrial
Engineers

Society of American Military
Engineers

LIRR Component Replacement Program for the M-1 Cars - Principal-in-Charge

Provided oversight for the replacement of selected components and systems on LIRR 132 M-1 cars. STV is responsible for assisting LIRR's effort in procuring, installing, and testing these components on the existing M-1 vehicles to improve the overall performance of the components. The components were selected based on their relative impact on fleet reliability. The components replaced included air conditioning compressor/condenser units, evaporators, Automatic Train Control (ATC), air compressor and brake equipment, propulsion system, door operators, heat circuit breaker panels, buffers, and train line systems. The propulsion system replacements included new main control groups, cam control overhaul kits, and new traction motors. Most of the systems were replaced in kind, with the exception of the propulsion system, which was upgraded. Any changes to systems were limited to those changes already instituted by the manufacturer to provide new equipment for similar functions in at least one other major application.

LIRR New Fleet of DE-30/DM-30 Dual Mode Locomotives and C-3 Bi-Level Coaches - Principal-in-Charge

Oversaw consultant services to the LIRR aiding them in the procurement process of this new fleet consisting of 134 passenger cars, 23 diesel locomotives and 23 dual mode locomotives. STV supported the LIRR in all aspects of this complex assignment, with an emphasis on design review, inspection, and in-service troubleshooting. Working closely with the LIRR, the firm assisted in the evaluation of bids and the selection of the manufacturers, and then monitored the overall design and production details. STV also monitored the design, testing and manufacture of the new locomotive body design to ensure that it met with the stringent requirements of the LIRR.

Long Island Rail Road - Former Industrial Engineer

Provided design and implementation of computer-assisted information systems to control and monitor all freight movement and billing operations, thereby improving service and allowing for substantial cost reductions; preparation of design parameters for new rail passenger facilities; complete redesign and implementation of passenger equipment schedules to allow for service improvements, manpower reductions and energy conservation; development of Standard Operating Procedures for use during emergencies; evaluation of alternate freight service system through consolidation of and improvement to physical plant and equipment; design of automated systems for rail passenger revenue collection; consolidation and/or elimination of work procedures leading to manpower reductions. In addition, he maintained close liaison with officials in the Operating Department to assist them with numerous other projects.

LEE S. OLSON, P.E.

Senior Project Manager/Professional Associate
Senior Supervising Mechanical Engineer

Years of Experience

29 (18 with PB; 11 with others)

Education

B.S., Mechanical Engineering, University of Tennessee, 1977

Professional Registrations

Georgia, 1993 (020406)

Key Qualifications

Lee Olson has over two decades of project management, engineering management and operating experience for passenger railway, rail transit and freight railroads. He has served as project manager of commuter rail service for Parsons Brinckerhoff's (PB) commuter engineering service contracts with the Massachusetts Bay Transportation Authority (MBTA), Fort Worth Transportation Authority (FWTA) and others.

Transit and Commuter Systems

- MBTA Bi-Level High-Capacity Commuter Rail Coach Procurement Program, Boston, Massachusetts: project manager for development of technical specifications, negotiation of procurement and delivery of a new design for 33 bi-level commuter coaches, with restrooms. These cars, designed to meet the new FRA 49CFR238 and APTA Press Standards, were built in Japan and Lincoln, Nebraska. For this program, PB, in joint venture, is providing engineering, inspection, and technical services during procurement of bi-level, push/pull commuter coaches, which seat 178 passengers each. Car procurement cost is \$80 million. Car procurement includes manuals, training and capital spares. Lee was also lead mechanical engineer for design review of 75 bi-level commuter coaches that were built in Japan and New York. For this program, PB provided engineering, inspection, and technical services during procurement of bi-level, push/pull commuter coaches, which seat 185 passengers each.
- MBTA Kawasaki Bi-Level Coach Option, Kobe, Japan: project manager for the procurement of 15 new bi-levels (Phase II: \$37,750,000) and 17 new bi-level commuter push/pull coaches (\$33 million) as an option to a previous order of 75 vehicles (total of 107 new bi-level coaches and cab cars).
- MBTA Pullman Coach Overhaul, Hornell, New York: project manager for the manufacturing phase of the overhaul program of the MBTA Pullman commuter coaches. The contract was to provide \$2.8 million of engineering and inspection services for overhaul (by others) of 57 Pullman commuter coaches. The Pullman contract included conducting design reviews, witnessing testing, providing inspection services, bi-monthly technical review meetings, disadvantaged business enterprise (DBE) compliance, and evaluating change orders/claims for extra work. The car overhaul program included upgrading the existing car structure to meet Americans with Disabilities Act (ADA) requirements, adding power door systems, converting CTC to BTC, and removing toilets and asbestos. Lee supervised a staff of ten engineers and inspectors at three locations. Additionally, he supervised four subcontractors that provided additional technical support. During this project, PB served as the interface for the client (MBTA) and the car overhaul contractor.
- Trinity Railway Express Rolling Stock, Texas: project manager for FWTA rolling stock that involved determining suitable types of available used commuter equipment for the Trinity Railway Express. Duties involved performing inspections of suitable equipment, establishing value, and assisting in purchases of used coaches, shipping, and insurance of cab cars and locomotives. Responsible for developing a schedule for procurement contracts from inception, bid process

through to delivery and warranty support for rolling stock; supervising development of technical and commercial documents for peer/industry review; identifying potential bidders and qualifications for bidders; assisting in pre-bid and bid process; developing technical package for a "piggy-back" order for two new cab cars to be functionally compatible with overhauled cars; and coordinating designs of overhauled and new cars, existing operations, and start-up of a new operations phase. The FWTa, in association with DART, is currently beginning a start-up operation for a new commuter rail service—the Trinity Railway Express—to provide new commuter train service from Fort Worth to Dallas, Texas. PB's contract provided engineering and inspection services for overhaul (by others) of ten commuter coaches, two cab cars, and four locomotives. The FWTa contract includes writing a technical specification for car overhaul. The total purchase value of the new and previously owned equipment and its refurbishment is \$32 million. PB managed two other procurements for FWTa of two new bi-level cab cars and two new F59PHI locomotives.

- New York City Transit (NYCT) Vehicle Contracts, New York City: lead mechanical engineer for design review during procurement. NYCT runs one of the oldest, largest, and most complex rapid transit systems in the world. Many of its current transit vehicles were acquired during the 1940s and 1950s, and to keep the system running, NYCT periodically rehabilitates these cars and purchases new ones. PB, in several joint ventures, provided vehicle analysis, new car procurement engineering design review and quality assurance, truck replacement inspection/testing, and vehicle rehabilitation studies. Lee's specific duties included serving as lead mechanical engineer for the R68A vehicle procurement. He performed design review and first article inspection of major subsystems such as air brakes, heating, ventilation and air conditioning (HVAC), and traction motors of the R68A rail cars. This work involved on-site engineering evaluation and inspection of vendor products, and supervision of the manufacture and testing of the braking system, wheels, axles, and traction motors. Lee performed in-process inspection of the car builder, reviewing arc and spot welding practices for high-strength and stainless steels.
- St. Charles Avenue Streetcar Revitalization Project, New Orleans, Louisiana: wrote contracts for the overhaul of traction motors, manual controller, and main breaker for the restoration of 35 streetcars built in the 1920s. The St. Charles streetcar line revitalization program also included reconstructing 13 miles (21 kilometers) of track and track bed, repairing and upgrading the electric power system, and renovating an historically significant streetcar maintenance facility. The project used new technology and materials to prolong the life of the world's oldest continuously operating streetcar line.
- Newark International Airport Automated People Mover, Newark, New Jersey: project manager for review of technical documents and contracts and for evaluation of design issues involving vehicles, station doors, and the maintenance facility car wash. PB was retained to develop the system operating plan, manuals, and a safety program for this 1.9-mile (3-kilometer) people mover with six stations.
- High Speed Surface Transport (HSST) Maglev Project, Las Vegas, Nevada: performed a safety review of system design for a proposed elevated maglev monorail system to transport people along the Las Vegas "strip." The HSST system comprises approximately 3 miles (4.8 kilometers) of line structure, three stations, a maintenance shop, and a central control facility. PB's responsibilities included design review for compliance with U.S. standards and practices, evaluation of environmental impacts, cost estimates, and expert testimony.

Previous Experience

Prior to joining PB, Lee worked for 11 years at the Norfolk Southern Railroad in a number of capacities:

- Sheffield Yard, Muscle Shoals, Alabama: as general foreman at this yard on the major east-west rail link between Memphis and Chattanooga and now a major north-south route from Mobile and New Orleans to Chicago and Kansas City. His primary responsibilities included supervision of diesel locomotive servicing and regular maintenance, and freight car repairs, including unit coal trains, radio control trains, and rapid dump coal cars.
- Norfolk Southern System Assembly Shop: as general foreman, Lee supervised the rebuilding, rewiring, and painting of locomotives. His work involved the overhaul of diesel engines and component parts, such as power assemblies, blower aspirators, air compressors, lube oil pumps, water pumps, and turbochargers. While Lee was assigned to this facility, which rebuilt all of Southern Railway's electric motor driven (EMD) locomotives, it recorded its highest levels of production and quality. Lee's responsibilities also included the testing of rebuilt locomotives; out of more than 200 rebuilt locomotives he personally released back to service, none recorded failures.
- Hayne Car Shop, Spartanburg, South Carolina: as cost control engineer, Lee supervised forecasting and control of the \$26 million annual budget of Norfolk Southern's largest box car repair shop. He performed cost estimates and analysis of the maintenance of Norfolk Southern's fleet of approximately 20,000 box cars, and supervised cost center inspectors and a staff that monitored material and labor expenses for this 450-employee shop.

Scott Allan Krieger, P.E.

Technical Advisor

Mr. Krieger has over 20 years of proven experience in vehicle engineering, project management, and operations management for commuter rail vehicles. He is familiar with the issues involved in major vehicle procurement and overhaul programs. His operations background gives him the expertise necessary for the development of maintenance plans, procedures, schedules, and man-loading for rail vehicle maintenance facilities. Mr. Krieger also has experience in developing, implementing, and monitoring quality assurance, staff training, and safety programs for maintenance facilities. He is adept in the development and implementation of maintenance management contracts. Prior to joining STV, Mr. Krieger worked in a variety of operations and maintenance facility positions at the Long Island Rail Road (LIRR), including serving as a master mechanic and a general foreman, giving him a client's perspective on rail vehicle procurement, maintenance, and operations. He led the LIRR in-house overhaul and propulsion upgrade project for their M-1 fleet.

Education

Bachelor of Science,
Mechanical Engineering;
Rutgers University College of
Engineering

Professional Registration

Professional Engineer: New
York

Memberships

American Society of
Mechanical Engineers

Project Experience

MBTA Procurement of Bi-Level Passenger Coaches - Engineer-in-Residence

Developing mechanical engineering specifications and other contract documents for the procurement of 33 new bi-level toilet coaches for the MBTA. Mr. Krieger is also responsible for project management tasks that include staff assignments, review of work products, and budget and schedule oversight. He is overseeing staff assignments, reviewing work products, and maintaining the budget and schedule. Mr. Krieger developed mechanical engineering specifications for various systems and subsystems, including vehicle interiors, toilets, seats, materials and workmanship, contract drawings, manuals and training, and safety. He provided procurement and design review support throughout delivery. Recently, Mr. Krieger oversaw the development of the technical specifications for the procurement of diesel-electric locomotives.

MBTA Railroad Operations Engineering Support Task Order Contract – Project Director

Managed and participated in the performance of a comprehensive fleet assessment in support of the maintenance contractor transition. Mr. Krieger also managed the development of a technical specification for the top deck engine overhaul of 25 GP40MC locomotives. He also provided diverse support of commuter rail operations as well as the Coach Reliability and Safety Program (CRASP) maintenance program. Currently, Mr. Krieger is acting as Project Director for the follow-on task order contract awarded this year. He is continuing his support of operations and the CRASP program. Additionally, Mr. Krieger is managing the development of a technical specification for bi-level coaches.

MBTA F40PHM-2C Locomotive Overhaul - Project Director

Responsible for local project management of an engineering services contract in support of the comprehensive overhaul of 12 F40PHM-2C locomotives to improve their efficiency and bring them into compliance with EPA regulations. Mr. Krieger's responsibilities also include directly providing mechanical engineering services. The vehicles have been in service for MBTA commuter rail since they were first built in 1990 and 1991 by Motive Power Inc., formerly Morrison Knudsen Corporation.

NJ Transit Bi-Level Rail Coaches - Senior Mechanical Engineer

Reviewed specifications that were developed for the procurement of bi-level passenger rail coaches for the NJ Transit rail system. This review included evaluating design criteria, confirming appropriate reference to specifications and regulatory compliance, and confirming applicable qualification testing requirements. Mr. Krieger's review included specification sections covering carbody, interior, trainlines, doors, HVAC, lighting, auxiliary power, trucks, brakes, materials, and testing. Additionally, he prepared a comprehensive list of contract deliverables and developed an estimated project schedule.

SCRRA Independent Review of Technical Specifications - Project Manager

Managed engineering services for independent review of SCRRA's technical specifications for new bi-level railcars. The goal was to verify that the specification sufficiently described the requirements of the vehicles and addressed all questions and concerns that arose on the previous bid. STV's vehicle specialists reviewed the technical specification for SCRRA's bi-level vehicle procurement. The review focused on both the technical and contractual requirements of the specification to verify that they were sufficient for use in a major vehicle procurement. STV verified compliance with mandated federal procurement guidelines and presented recommendations for any revisions to the technical specification. Mr. Krieger compiled findings into a comprehensive report delivered to SCRRA in support of their procurement process.

LIRR M-3 Overhaul Support - Project Manager

Managing vehicle engineering and documentation specialists during this project to develop overhaul and back shop procedures for new systems and components installed under the M-3 car overhaul program. The overhaul of the Long Island Rail Road (LIRR)'s 172-car M-3 electric multi-unit (EMU) fleet is to replace certain critical components and subsystems with new ones of much higher reliability and subsequently lower maintenance costs. Mr. Krieger is also preparing modified wiring schematic roadmaps for systems including: inverter, 230 VAC blower motors, HVAC panels, A Car B-end ducting, door operators, radio/PA, vacuum toilets, and ATC Micro-Cab. Procedures comply with the LIRR's standard operating format and will be integrated into the ongoing maintenance for the rebuilt vehicles.

VRE Mechanical Engineering Consultant III Task-Order Contract - Lead Engineer

Preparing the specification sections for carbody and doors and reviewed the drafts of all other sections during the development and assembly of technical specifications for the procurement of multi-level coaches for the Virginia Railway Express (VRE). The VRE has retained STV as a Mechanical Engineering Consultant to provide various engineering services on a task order basis. The firm is scheduled to provide vehicle engineering for a commuter rail car procurement and a locomotive procurement, as well as operations and maintenance (O+M) support for a transition to a new O+M provider. STV will formulate a specification and provide bid support and procurement inspection and testing for the new multi-level rail cars. Mr. Krieger responded to questions from potential bidders and advised the VRE on technical issues during negotiation up through the award to Sumitomo/Nippon-Sharyo. He also oversaw the development of various specifications and contracts in support of VRE's operation, including those for a single car test device, a wheel measuring machine, and a blanket HVAC filter contract. In addition, Mr. Krieger is providing technical input to operational issues, including the tracking of wheel wear and the prediction of wheel truing and replacement.

LIRR M-7 Car Procurement Program - Senior Mechanical Engineer

Reviewed and commented on engineering submittals in support of the procurement of 326 new M-7 electric multi-unit (EMU) cars as part of the Long Island Rail Road's (LIRR) ambitious fleet replacement program. Mr. Krieger reviewed and prepared responses to submittals for the air brake and coupler systems. He also reviewed and prepared responses to the dynamometer test procedure and the master controller qualification test procedure.

ConnDOT Pre-Procurement Inspection of VRE Vehicles - Vehicle Specialist

Providing vehicle engineering support for a fleet assessment of 28 VRE single-level Mafersa coaches for the Connecticut Department of Transportation (ConnDOT). Mr. Krieger is responsible for inspecting the coaches and preparing an assessment report and recommendations regarding acquisition to ConnDOT. Major components under inspection include HVAC systems, seats, windows, flooring, lights, recent repairs, doors, trucks, bathrooms, wheel chair lifts, cab controls, and exterior and interior finish. The client then will use these inspections for price negotiations with VRE.

SEPTA Silverliner V Procurement Assessment - Senior Mechanical Engineer

Participated as part of a team providing third party support to the SEPTA Board of Directors in evaluating the procurement process for the Silverliner V fleet. STV was responsible for performing an analysis and recommending salient car features to be provided on the Silverliner V, the Southeastern Pennsylvania Transportation Authority's (SEPTA) new commuter rail coach. The scope of work for this project included determining the basic intent of car design; car configuration for one-person operation; high and low platform access; door arrangement, configuration and location; cab arrangement; acceleration and braking rates to improve travel times; car arrangement

considerations, including single car, married-pair, single cab; compatibility issues with existing Silverliner IV cars; utilization of existing commuter car designs modified to meet needs; 12kV/25kV catenary voltage capability; use of AC or DC propulsion systems; consideration of capital costs and operating and maintenance costs; and consideration for design requirement for Schuylkill Valley Metro.

SEPTA Silverliner V - Senior Mechanical Engineer

Developed preliminary design evaluation of design criteria for use in the specification of Silverliner V electric multiple unit cars for SEPTA. Mr. Krieger's analysis included dual voltage capability, propulsion system comparison, and car/cab configuration.

Long Island Rail Road Support Shop Operations - Former Master Mechanic, Maintenance-of-Equipment Department

Supervised all aspects of support shop operations at Long Island Rail Road (LIRR) facilities. Mr. Krieger managed a staff of two general foremen, seven supervisors, and 170 mechanics. He was responsible for budget, productivity, quality of work, and employee safety.

Kenneth W. Bossung, P.E., P.P.

Technical Advisor

Mr. Bossung is a vice president with more than 40 years of experience in the project management and direction of rolling stock and facility projects. He is administratively and technically responsible for the preparation and supervision of plans, specifications, contract documents, reports, cost estimates and construction supervision for major rail transportation projects. In particular, his expertise in vehicles involves rolling stock and railway rolling stock design, specification development, procurement assistance, manufacturing inspection and quality assurance, rebuilding and remanufacturing, testing and warranty administration. Mr. Bossung's project management skills include technical oversight and integration, staff allocation, budgeting and scheduling, quality assurance and client liaison. He has specialized experience in the organization, direction, supervision, and coordination of engineers and designers engaged in analyzing, planning, and developing facilities, which require the integration of many technical disciplines. He is a former Deputy General Manager of LIRR's Diesel Shops, Maintenance of Equipment Department. He also held the positions of senior mechanical engineer in the equipment department and industrial engineer in the planning department of the same agency. In addition to his former positions at LIRR, Mr. Bossung has directed and managed numerous new design and improvement projects for passenger rail operators throughout the Northeast.

Project Experience

LIRR C-3 Bi-Level Coach and DE-30/DM-30 Locomotive Procurement Program - Project Manager

Oversaw the management, organization, bid evaluations, procurement, and construction of a fleet of 134 diesel-hauled bi-level C-3 coaches, 23 diesel-electric DE-30 locomotives, and 23 dual-mode DM-30 locomotives. Mr. Bossung managed these efforts under an aggressive schedule. For Phase I, he oversaw the bid evaluation process, including review of builder submissions, qualifications, and financial statements while assessing the specifications for compliance and reviewing components for life cycle and reliability. The scope of work also entailed computer simulations as part of an interpretive analysis to compare relative performance characteristics unique to the various locomotive types being considered for procurement. In phase II, Mr. Bossung oversaw STV's efforts to assist the LIRR in all phases of procurement—from design and assembly/inspection, to delivery/testing and follow-on correction of design modification and retrofit work for both EMD's DE/DM-30 locomotives and Kawasaki's bi-level coaches. Mr. Bossung managed the technical integration and systems interface among numerous computer-controlled systems shared by EMD's locomotives and Kawasaki's Coaches, including ATC, braking, automatic station identification and announcements, door controls, and HVAC.

Education

Master of Science, Industrial Management; State University of New York
Bachelor of Science, Mechanical Engineering; University of Bridgeport
Track/Train Dynamics Seminar; Massachusetts Institute of Technology

Professional

Registration

Professional Engineer: New York
Professional Planner: New Jersey

Long Island Rail Road - Former Deputy General Manager, Diesel Shops, Maintenance of Equipment Department

Responsible for the day-to-day shop operations as they related to inspection, heavy repair, overhaul, and modifications of diesel-hauled cars and locomotives within the Equipment Department. This included directing a 24/7 operation to provide safe, reliable, clean, and comfortable diesel equipment to meet the LIRR's Transportation Department timetable requirements. Mr. Bossung provided management of all activities between the LIRR and rolling stock suppliers—Kawasaki Rail Car and General Motors Electro-Motive Division—to address fleet modifications which resulted in improvements to reliability and maintainability of the new fleet. He established long-term parts and technical support agreements between the Railroad and builders. Mr. Bossung resolved open commercial issues associated with the close-out of Kawasaki and EMD contracts. He also managed the implementation of a life-cycle maintenance program that addressed facility, manpower, and materials for the new diesel fleet. This program resulted in the movement of work from the unplanned environmental to the planned environmental, thereby enhancing both the planning and budgeting processes and increasing the mean time between failures on the fleet.

ConnDOT FL-9 Diesel-Electric Locomotive Rehabilitation - Project Director

Carried out technical quality control, cost and schedule adherence and overall project administration for the rehabilitation of diesel-electric FL-9 Locomotives for the Connecticut Department of Transportation. Mr. Bossung coordinated detailed analysis and design of structural repairs required to rehabilitate each FL-9 carbody.

Metro-North/LIRR Dual-Mode Locomotives Rebuild Program - Project Director

Directed the inspection and testing services for the remanufacture and upgrade of the FL-9 locomotive units into dual-mode locomotives for Metro-North and LIRR. Mr. Bossung oversaw the installation of a variable voltage/variable frequency (VVF) propulsion system, a solid state HEP inverter package, electrically driven air compressors, three-phase asynchronous induction traction motors and other similar technology. Information gleaned during this prototype development program was subsequently incorporated into the 23 DM-30 Locomotives procured by LIRR.

CONEG High Speed Rail Test - Project Director

Directed the firm's efforts for the Coalition of Northeast Governors (CONEG) High-Speed Rail Task Force in its program with Amtrak and the Federal Railway Administration to observe Amtrak's Swedish X2000 and German ICE trainset tests on the Northeast Corridor. The scope of work included a review of the test plan, witness tests, and review/comment on Amtrak test reports. The existing right-of-way between New York and Boston has many curves that result in speed restrictions. Mr. Bossung

performed tests that employed the latest technology in reducing cant deficiencies to analyze ways in which to increase speed through curves.

Metra Gallery Commuter New Car Fleet Procurement - Project

Director

Directed professional services so that the manufacturer incorporated the latest technology; met the physical, functional and performance requirements of the Metra specification; and provided adequate safety, reliability, and maintainability features for 173 new gallery commuter cars for Metra in Chicago, IL.

Virginia Railway Express Locomotive Procurement Program - Project

Director

Directed all aspects of vehicle engineering and inspection services for the Virginia Railway Express locomotive procurement program. In this capacity, Mr. Bossung directed engineering design, construction inspection at the assembly plant, and design review for 10 EMD GP-38 diesel electric locomotives that were remanufactured by Morrison Knudsen Corporation at Hornell.

NVTC Virginia Rail Express Car Procurement Program - Project

Director

Directed vehicle engineering design, construction inspection and design review services for the VRE's 38 new stainless steel push-pull cars. Mr. Bossung supervised the coordination and administration of the project, from initial award of the equipment-manufacturing contract through final testing and acceptance. The cars were supplied by Mitsui Corporation and manufactured under contract in Brazil by MAFERSA.

JOHN W. (JACK) BARNAS, P.E.

Senior Supervising Engineer
Manager—Vehicles North, PB Transit & Rail Systems, Inc.

Years of Experience

37 (7 with PB; 30 with others)

Education

B.S., Electrical Engineering, University of Pittsburgh, 1969
Business Management Studies, University of Maryland

Professional Registrations

Delaware, 1983 (6336)

Key Qualifications

Jack Barnas has over three decades of experience in managing rail vehicle-related projects. While with Amtrak, as director of design equipment acquisition, he provided technical direction and engineering support through all phases of rail passenger vehicle programs, including the high-speed train sets. Jack was responsible for overseeing the procurement of 190 Superliner II bi-level cars manufactured in six different configurations, and 50 Viewliner sleepers.

Relevant Project Experience

- Caltrain Bi-Level Commuter Car Overhaul, California: as senior supervisory engineer, directed an engineering team in the preparation of an engineering estimate for the overhaul of bi-level commuter cars.
- Caltrain Locomotive and Gallery Car Procurement, California: as project manager, provided engineering, inspection, and project administrative services for the acquisition of three new F40PH2C locomotives and 20 new gallery cars. He also directed the activities of five subcontractors and a staff of 20 engineering, inspection, and administrative personnel in support of this project.
- Utah Transportation Authority, Utah: as task leader, directed activities for the condition assessment of a fleet of bi-level Metra gallery cars and Comet 1 commuter cars. The study included an assessment of car condition, overhaul recommendations, an engineering estimate for the overhaul and technical specifications for the overhaul.
- Light Rail Vehicle Mid-Life Overhaul Study, Niagara Frontier Transportation Authority (NFTA), New York: as task leader, Jack directed engineering activities for the mid-life overhaul study for NFTA light rail vehicles. The study included an assessment of car condition, overhaul recommendations, and associated cost estimates for the overhaul.
- Metro-North Railroad, New York, New York: as project manager, he directed engineering activities for the preparation of technical specifications for the acquisition of EMU cars using AC traction.
- R-38 MU Car Rebuild, New York: as engineering manager, directed the engineering efforts for the rebuild of 200 R-38 MU cars for New York City Transit. He also prepared test codes for in-factory testing, oversaw in-plant testing, directed the product service team, and prepared maintenance manuals
- Heavy Rail Cars, Baltimore, Maryland: as task leader, he directed engineering activities for the mid-life overhaul study for Maryland Transit Authority heavy rail cars. The study included an assessment of car condition, cost estimates for the overhaul, and a draft specification.
- Underwriters Lab (UL)/New York City Transit (NYCT) Inspections, New York: senior supervisory engineer assisting the project manager with the operation and oversight of a team

of inspectors performing, on an international basis, commodity source inspections for NYCT. Commodities included track materials, signal equipment, structural steel, and rail vehicle components.

- Virginia Railway Express Push-Pull Rail Vehicle and Diesel Locomotive Overhaul, Virginia: as project manager, Jack provided oversight and technical direction for project task leaders, as well as tasks engineering and inspection support for the overhaul of push-pull rail vehicles and diesel locomotives.
- Dual-Mode Electric Locomotive Study, Connecticut Department of Transportation, Connecticut: as task leader, Jack led a study on the application and availability of dual-mode electric locomotive for use on the New Haven Line. He also provided technical direction and expertise for the study to convert M-2 Electric Motorized Units (EMU) coaches into push-pull coaches.
- Amtrak EMU Car Overhaul, Washington, DC: as project manager, he directed the engineering team assisting in the preparation of a proposal to overhaul Washington Metropolitan Area Transit Authority (WMATA) EMU cars.
- Caltrain Bi-Level Commuter Car Overhaul, California: as senior supervisory engineer, he directed an engineering team in the preparation of an engineering estimate for the overhaul of bi-level commuter cars.

Previous Experience

Jack's experience before joining PB included:

- Amtrak (National Railroad Passenger Corporation):
 - Technical advisor to the state of California for the design and construction of the California Car.
 - Provided technical support during contract negotiations and construction of Viewliner Sleepers.
 - Organized and advised task teams for development of the High Speed Train Set Specification.
 - Evaluated technical proposals submitted for the purchase of railroad passenger equipment, including high speed train sets.
 - Designed modifications to railroad passenger cars to ensure compliance with Americans with Disabilities Act (ADA) guidelines.
 - Wrote overhaul and new car specifications for railroad passenger equipment.
 - Provided technical support during contract negotiations for Superliner II equipment.
 - Prepared responses to the Federal Railroad Administration (FRA) during the rule making of the ADA guidelines.
 - Prepared locomotive technical specifications for replacement of mechanical gauges with microprocessor based electronic gauges and displays.
 - Provided expert testimony at trials involving personnel injuries on Amtrak passenger equipment.
- General Electric Company:
 - Developed, staffed, trained, and directed an engineering design team, functional test technicians, and a product support team.
 - Developed and wrote test codes, inspection manuals, and maintenance manuals.
 - Evaluated vendor proposals for major subsystem purchases.
 - Provided technical support for preparation of bid proposals for the overhaul of NYCT subway car overhaul contracts. He sourced equipment vendors and evaluated technical proposals for traction and HVAC equipment.
 - Directed field service teams that provided technical assistance to car builders manufacturing and commissioning subway and rapid transit cars. Jack prepared forecasts for installation and complaint budgets for assigned programs.
 - ~~Resolved customer complaints for assigned equipment programs.~~
 - Directed power consumption tests for the City of Philadelphia Broad Street Subway Project.

- which turned a potential \$1 million performance penalty into a \$1.4 million incentive rebate.
- Managed field sites for assigned transit equipment programs. Directed the activities of a six-person field service team and two vendor teams.
- Commissioned new passenger equipment, resolved complaints, installed and tested equipment modifications, and provided technical support to car builders.
- Provided post warranty technical services to passenger railroads and transit authorities in the Northeast Corridor.
- Taught U.S. Navy electronic technicians system operations and maintenance for fire control/guidance equipment.

TONY DIORIO, P.E.

Mechanical Engineer

Years of Experience

21 (10 with PB; 11 with others)

Education

B.E., Mechanical Engineering, City College of the City University of New York, 1985

Professional Registrations

Georgia: 1997 / Professional Engineer; New York: 2006 / Professional Engineer.

Relevant Experience

- MBTA SR-36 Push/Pull Commuter Coach Program, Tony wrote the HVAC Section for the Greenbush procurement. He approved all HVAC Test Procedures, including the Climate Room Test Procedure. He went to Japan and witnessed the climate room test for this car design.
- MBTA SR-27 Push/Pull Commuter Pullman Coach Overhaul Program, Boston, Massachusetts: serving as part of a team of engineers overseeing the mechanical systems aspects of this overhaul project involving 57 commuter coaches. Mr. Diorio was responsible for reviewing and commenting on engineering design issues, project drawings, and vehicle engineering tests. Tony witnessed the climate room test.
- Trinity Railway Express Commuter Coach Overhaul Program, Fort Worth, Texas: wrote the HVAC section of the technical specification for the refurbishment of bi-level commuter coaches, which included a heating and cooling analysis to determine a new design criteria for change in service from Toronto Canada to Dallas Fort Worth conditions. As well as design changes to the system to increase the capacity of the air conditioning system.
- Massachusetts Bay Transportation Authority (MBTA) High Capacity Push/Pull Bi-Level Commuter Coach Program, Boston, Massachusetts: serving as part of a team of engineers overseeing the mechanical systems and Americans with Disabilities Act (ADA) aspects of this new vehicle procurement project involving 17 new bi-level commuter coaches. He was responsible for reviewing and commenting on engineering design issues, project drawings, and vehicle engineering tests.

Prior to joining PB, Anthony worked for a major rail vehicle manufacturer where he was responsible for planning, coordinating, and directing HVAC activities for various new rail car and overhaul projects. He reviewed and commented on HVAC proposals; defined project goals and requirements; ensured schedule adherence; managed engineers, designers, and drafters; wrote system specifications; and generated maintenance manuals. He also performed necessary design analyses, such as car heating and cooling load analysis, duct design analysis, car body heat transfer analysis, and structural analysis.

James F. Gregory

Support Engineering

Mr. Gregory has more than 35 years of experience in electrical systems and project engineering for the production of design and build-to-order electrical systems, from development to overhaul and rehabilitation. He has particular expertise in electro-technology related to the application of static power conversion, control, and protection, especially for rail transit electrical systems, including auxiliary power and propulsion, and large power supplies for industrial and laboratory applications. Mr. Gregory has provided first line technical management of test, electrical systems, and project engineering, involving work process evaluation and development, for major rail providers including SEPTA, WMATA, MBTA, Chicago Metra, and San Francisco MUNI. He is familiar with project scheduling and presentation software and with United States and international industry standards related to rail passenger vehicles and electro-technology.

Education

Bachelor of Science,
Electrical Engineering;
Purdue University

Graduate Coursework,
Electrical Engineering;
University of Pennsylvania

Memberships

Institute of Electrical &
Electronics Engineers (IEEE)

Project Experience

MBTA Procurement of New Bi-Level Coaches - Vehicle Specialist

Performed design review for electrical subsystems, including HVAC, communications, and train lines, for the procurement of 33 new bi-level coaches to accommodate increased service on the Greenbush Line. The stainless steel bi-level cars were 85-feet-long and had an average seating capacity of 180 passengers. Mr. Gregory provided test document review and support for First Article Inspections. He reviewed drawings for the following equipment: communications system, lighting system, electrical system, electrical trainline control, HVAC control. Mr. Gregory also reviewed documents for electro-magnetic compatibility, vehicle level routine test procedures, HVAC software documentation and routine and type test procedures, lighting system routine and type test procedures, and communications system routine and type test procedures.

NJ Transit Multi-level Vehicle Procurement - Vehicle Specialist

Providing design review for the procurement of more than 100 multi-level coach cars being acquired by NJ Transit. Mr. Gregory is reviewing design documents and reports related to reliability, safety, and maintainability of all vehicle subsystems, including doors, brakes, lighting, communication, and toilets.

VRE Mechanical Engineering Consultant III Task Order Contract - Project Manager

Managing engineering and maintenance support services to Virginia Railway Express (VRE) for their commuter rail vehicle fleet. Mr. Gregory is responsible for managing VRE's technical documents and managing three subconsultants with more than 15 task orders to date. The scope of work ranges from new vehicle procurement to routine corrective maintenance of approximately 20 EMV locomotives (including GP39, GP40, F40P, and two

F59s) and 75 coach cars. The project also includes running and corrective maintenance. This task-order based contract covers engineering, maintenance, inspection, repair, modification, and documentation for commuter rail rolling stock. Mr. Gregory prepared technical specification for new commuter rail car procurement and specifications for system assurance, system support, and workmanship and materials. He reviewed all sections of specification. He prepared technical specifications both for the overhaul of EMD locomotive engines and traction motor-wheelset combinations and for procurement of new wheelsets and repair of existing wheelsets for commuter railcars. Additionally, Mr. Gregory reviewed technical proposals for new cars, locomotive service and repair, and locomotive engine overhaul contracts, as well as all documentation associated with the repair and maintenance of locomotives and commuter rail cars.

Maryland MTA System Task Order Contract - Project Manager

Managing this task-order based contract to provide engineering and inspection services to the MTA related to commuter, heavy, and light rail vehicles, as well as buses. Mr. Gregory is managing two subconsultants, to date, with one task order and proposals for two additional pending. He is also participating in providing procurement support of any rolling stock vehicle, vehicle inspections, test support, supplier evaluations, and corrective action recommendations. Additionally, Mr. Gregory is preparing technical specification for the upgrade and expansion of an automatic announcement system for passenger rail vehicles.

SEPTA M4 Car Procurement - Former Manager, Electrical Systems and Testing

Supervised staff responsible for systems integration, electrical engineering, and reliability testing for new rail vehicles to be used on the SEPTA Market-Frankford Line in Philadelphia, PA. Mr. Gregory was responsible for integrating new systems, including propulsion, brakes, and auxiliary power and all testing on-site at the assembly plant in Elmira, NY, for this project. He also managed the staff that performed the reliability demonstration testing and reported its results. Mr. Gregory reviewed all electrical systems drawings, including components, equipment, and integrated schematics. He developed the master test plan, including sequence and prerequisites, for the entire vehicle test program. Mr. Gregory reviewed all test procedures for the project, including type and routine tests, and static and track tests. He also provided factory liaison engineering for propulsion and auxiliary power system supplier and reviewed all reliability related documentation and supervised reliability demonstration test program.

Metra Highliner EMU Brake System - Project Engineer

Performed brake system engineering, system design, and system integration for Highliner bi-level, electric multi-unit (EMU) rail vehicles for the commuter rail system in Chicago, IL.

John J. Gregory, P.E.

Engineer-in-Residence, Boston

Mr. Gregory is a mechanical engineer with more than 15 years of experience in passenger transit and rail vehicle design as well as managing, reviewing, and coordinating engineering design; manufacturing to customer specifications and industry standards; and supervising mechanical design, including electromechanical interfaces. He has experience with systems integration, troubleshooting mechanical design problems, maintaining design quality assurance, and ensuring specification compliance, safety, manufacturability, and cost effectiveness. Mr. Gregory has managed test activities for material testing and flammability, toxicity, and fire-resistance testing. He has particular expertise in passenger rail transportation projects, especially the implementation and procurement of light rail vehicles for large-scale installations. Mr. Gregory is familiar with the protocols and procedures specific to local, state, and federal agencies, including the FTA, FRA, and AAR, as well as organizations that are associated with the manufacture and sale of parts necessary to the railroad industry, including ASTM, ANSI, AWS, Mil-Std, and ISO.

Education

Bachelor of Science,
Mechanical Engineering;
California State University
Fundamentals of Railway
Train Control and Signaling
Systems; University of
Wisconsin

Professional Registration

Professional Engineer:
California

Project Experience

MBTA Railroad Operations Task Order Contract - Senior Vehicle Engineer

Completing overhaul document reviews and modification instructions as part of the MBTA/Amtrak audit of commuter rail vehicles in Boston, MA. STV is reviewing fleet maintenance records and inspecting vehicles.

TTA/NJ Transit Diesel Multiple Unit Vehicle Procurement - Mechanical Engineer

Developed new vehicle specifications for the procurement of Diesel Multiple Unit Vehicles (DMUs), and co-procurement of DMUs between the Triangle Transit Authority (TTA) and New Jersey Transit. Mr. Gregory was responsible for the base project definition and vehicle selection; cost estimates; refining the project scope; preparing technical specifications; production meetings; design troubleshooting; corrective action plans; and conceptual, preliminary, and final design review. His detailed analysis of the design information included component interface, evaluating material applications, solving design-related problems, and ensuring good design practice with respect to function, specification compliance, safety, manufacturability, and cost savings. Mr. Gregory conducted maintenance evaluations including maintenance shop inspections and recommendations.

NFTA Light Rail Vehicle Specifications - Mechanical Engineer

Developed rehabilitation specifications for the Niagara Frontier Transit Authority (NFTA) light rail vehicles (LRVs). Mr. Gregory conducted maintenance evaluations including maintenance shop inspections and recommendations. He completed conceptual, preliminary, and final design review; provided vehicle selection and cost estimates; refined the project

scope; prepared technical specifications; attended production meetings; and provided design troubleshooting and corrective action plans. Mr. Gregory analyzed design information; evaluating component interfaces and material applications; solved design-related problems; and ensured good design practice with respect to function, specification compliance, safety, manufacturability, and cost savings.

Maryland Rail Commuter (MARC) Locomotive Overhaul - Mechanical Engineer

Prepared an alternatives analysis and recommendations for auxiliary head-end power supply (HEP), locomotive mid-life rehabilitation (prime mover), and layover power sources for this commuter line in Baltimore, MD. The analysis included basic configuration, engine sizing and selection, EPA considerations, and rehabilitation of trucks. Mr. Gregory conducted maintenance evaluations including maintenance shop inspections and recommendations. He was responsible for cost estimates, refining the project scope, preparing technical specifications, reviewing preliminary through final design, attending production meetings, troubleshooting, and preparing corrective action plans. Mr. Gregory evaluated material applications, solved design-related problems, and ensured good design practice with respect to function, specification compliance, safety, manufacturability, and cost savings.

BART New Vehicle Specification Development - Lead Mechanical Engineer

Provided mechanical engineering for new vehicle specification development for the Bay Area Rapid Transit (BART) expansion and San Jose extension vehicles in San Francisco, CA. Mr. Gregory reviewed the existing BART vehicles and system to establish the design requirements for the new vehicles. He reviewed the maintenance systems, records, and shop capabilities to provide recommendation for optimized maintenance activities. Mr. Gregory supervised, inspected, and tested the installation of fare collection gates and fare vending machines for BART stations.

San Francisco MUNI Light Rail Vehicle Procurement - Project Engineer

Responsible for the procurement of 151 Breda light rail vehicles for the San Francisco Municipal Railway (MUNI) system in California. Mr. Gregory reviewed the design documentation, procedures, and submittals, including the retrofit designs and procedures for the first 77 Breda vehicles. He also supported the design and delivery issues for the remaining 74 vehicles.

Santa Clara VTA Light Rail Vehicle Procurement - Mechanical Engineer

Provided technical support for the alternatives analysis, specification development, and negotiations for new low-floor light rail vehicles that complied with the Americans with Disabilities Act (ADA) for the Santa Clara Valley Transportation Authority (VTA). Mr. Gregory reviewed design documentation to ensure that the final vehicle met specifications, and provided support for the vehicle safety certification efforts.

Metropolitan Transportation Authority (Metro) Light Rail Vehicles - Assistant Manager, Mechanical Engineering

Led the Los Angeles mechanical engineering design team for the design, manufacture, and delivery of 52 light rail vehicles for the Green Line in Los Angeles, CA. Mr. Gregory implemented a comprehensive weight-reduction program to successfully reduce the vehicle weight. He prepared contract submittals, hosted design reviews, procured mechanical components for light rail vehicle assembly, interpreted drawings and parts lists with sub-suppliers, and coordinated parts lists for final assembly. Mr. Gregory also participated in the Los Angeles Advance Transportation Product Development Program to optimize weight of vehicles by working with the aircraft and space industry. He supplied vehicle and system information to be used with spacecraft weight optimization in order to reduce the weight of light rail vehicles. Mr. Gregory also worked as a project engineer in the early stages of this project, developing detailed interpretations of specifications in regards to the design.

San Diego MTDB Light Rail Vehicle Procurement - Project Manager

Managed the manufacture and delivery of 52 light rail vehicles to the San Diego Metropolitan Transit Development Board (MTDB). Mr. Gregory coordinated customer specifications with engineering design, prepared contract submittals for customer approval, and procured mechanical components for light rail vehicle assembly. He also coordinated construction of rail spur connection between the San Diego and Imperial Valley Railroad and the Southern Pacific Railroad for off-loading of vehicles.

Clifford E. Hall

Summary of Qualifications

Innovative, high-energy, multi-disciplined vehicle test engineer with extensive experience with activities in the specification, design, fabrication and test of electronic and electromechanical components and systems for the rail transit, aerospace, and military industries.

Professional Experience

VP Engineering, Inc.

MBTA Bi-Level Commuter cars - Completed miscellaneous function tests at Lincoln, Nebraska. Currently, involved in reviews of on-going electrical data submittals including drawings and documents.

Cliff Hall Consulting, Fort Collins, Colorado

2003 to 2004: Under contract to LTK Engineering Services in Los Angeles, California. Vehicle Test Engineer, Sacramento Regional Transit. Performed both static as well as low and high-speed dynamic acceptance testing of the propulsion, braking, trainline & communication systems on the new Light Rail Vehicles built by CAF for the expansion project. Ran tests on each car, reviewed the charts and prepared final acceptance test reports for the 40-car order.

Virinkar & Associates, Brea, California

2000 to 2003: Vehicle Test Engineer, Los Angeles County Metropolitan Transit Authority (LACMTA). Performed low and high-speed dynamic acceptance testing of the propulsion and braking systems on the new P2000 Light Rail Vehicles built by Siemens for the Greenline project. Ran the tests on each car, reviewed the charts and prepared final acceptance test reports on most of the 52-car order.

Cliff Hall Consulting, Huntington Beach, California

1999 to 2000: Under contract to LTK Engineering Services in Los Angeles, California. Witnessed vehicle acceptance testing of the Los Angeles Red Line cars. Verified test compliance and data for vehicle static and dynamic tests. Approved test results.

ALLIEDSIGNAL AEROSPACE EQUIPMENT SYSTEMS, Torrance, California

1995 to 1999: Senior Project Engineer, team member in the design, development, and test of electric power converters for the X-33 spacecraft, Russian MIR space station, F-22 and E-2C aircraft and NSSN submarine applications. Developed test procedures, schematics and mechanical drawings. Directed outside vendor operations, working closely with suppliers to develop specifications for custom high power IGBTs, printed wiring boards and castings used on these projects. Coordinated prototype fabrication and test. Made schedules and monitored costs.

1989 to 1995: Customer Support Engineer, provided technical assistance to our rapid transit customers in San Francisco, Boston, and Atlanta, as well as to our military customers with electric motors, electromechanical actuators, fans, pumps and ram air turbines. Conceptualized and implemented a PC-based system for collecting and re-distributing worldwide field reports, significantly improving field support efficiency and shop turn-around times.

After the rail transit business was sold, worked on my own as a private contractor to ABB Traction, designing the wiring interconnections, terminations, automatic wire wrap data and diagnostics, along with the schematics for the Propulsion Electronic Control Equipment (PECE) for the first Los Angeles Red Line

cars.

1977 to 1989: Development Engineer, developed 25,000 amp Navy switchgear for the superconducting generator project (Supercon), then ran mechanical shock tests at the Navy's shock test facility at Hunter's Point in San Francisco, in support of the Navy's AMPS propulsion program. Assisted in the development and test of a multi-megawatt power supply for an air-to-air laser weapons system for the Air Force. Returning to mass transit, helped to develop the propulsion and auxiliary power hardware for the MARTA and BART systems in Atlanta and San Francisco – designed wirelists, schematics, and wrote acceptance test procedures. Maintained configuration control. Coordinated U.S. and Mexico production lines, resulting in successful program to ship 120 propulsion car-sets at a peak rate of one car-set per week.

1974 to 1977: Systems Engineer, on ACT-1 (Advanced Concept Train). In addition to the auxiliary power system, handled system interface integration of the communication system, which included video surveillance cameras and monitors, train-to-wayside radios, passenger intercoms, and automatic audio and digital station stop announcements and displays. Assisted in the development of the specification for the train control system ATP supplied by GRS. Responsible for cost, performance, and schedule for all three systems.

1973 to 1974: Development Engineer, on SLRV (Standard Light Rail Vehicle) for San Francisco and Boston. Helped develop the main dc choppers and field power supplies - designed wiring, and schematics, wrote test procedures, and worked with maintainability group to maximize the serviceability of the power components. Maintained configuration control. Assisted in system integration of wiring interfaces and power component specifications.

1972 to 1973: Senior Laboratory Technical Specialist, supported field tests of the SOAC (State-Of-the-Art-Car) in Pueblo, Colorado and assisted the inverter testing for the Apollo Lunar Rover Vehicle and Apollo Waste Management System.

1969 to 1972: Laboratory Technical Specialist, Supported field testing of the GT-2 (Gas Turbine-electric) car in Long Island, NY, and helped develop Hall-effect current sensors for the 8,250 Vac TACRV (Tracked Air Cushion Research Vehicle). Worked extensively on the 480V inverters and rectifiers for the 1.0 megawatt UPS system for the FAA Air Route Traffic Control Centers.

1968 to 1969: Laboratory Development Technician, worked with fabrication team on the linear induction motor for the LIM vehicle which was developed to study high-speed wheel/rail dynamics at 280 mph. Performed qualification tests of cabin pressure system components for the Boeing 707 and Lockheed C5A aircraft.

AMERICAN SAFETY EQUIPMENT CORPORATION, Fresno, California

1967 to 1968: Production Controller, high-volume manufacture of seat belts for Chrysler, Volkswagen, and American Motors. Assisted in computerization of production control task. Assisted maintenance of production line equipment during emergencies.

Computer Experience: WordPerfect, Word, Excel, Power Point, Windows, MS-DOS, as well as BASIC, dBASE and Clipper programming

ISO-9000 Training: Total Quality Leadership, Increasing Team Effectiveness, Managing the Rapids of Change

Education: B.S., Industrial Technology, University of California at Fresno

KEITH HALLAM

Mechanical Engineer

Years of Experience

22 (5 with PB; 17 with others)

Education

National Certificate (Mechanical Engineering), Cambridgeshire College of Arts and Technology, 1965

Relevant Experience

- Metropolitan Atlanta Regional Transportation Authority System CQ312 Program, Atlanta, Georgia: Has served as mechanical engineer with the System CQ312 program in MARTA's Vehicle Engineering department. He has been involved primarily with Acceptance and Production testing at MARTA facilities, before the cars go into revenue service. In addition he has been reviewing maintenance manuals, vendor production drawing and tracking status and documentation of modifications for the cars in this program.

Keith has been involved with various modifications to the cars: Truck side bearings and high voltage junction box installation and witness testing of modifications. AC propulsion motor gearbox teardowns: bearing, grease and gear analysis. Proposal to replace cab operator's fabricated door lock

Keith has overseen various shop maintenance practice improvements, such as: drill fixture for repairing mounting holes for the truck tread brake units; bench fixture for torquing the tread brake and adaptor plate bolts; go-no go truck secondary suspension air spring height gage; current collector height gauge Armour Yard jack stands of track pit; and the wheel spinning post magnetic supports for the CQ310 cast side frame, so that trainsets can be road tested safely in the shop.

- Greenbush Line Bi-Level Commuter Coach Procurement, Boston, Massachusetts: Reviewed designs for mechanical systems and interiors on Massachusetts Bay Transportation Authority (MBTA) Greenbush coach procurement.
- Passenger Car Engineering: As project engineer with Pullman Standard, coordinated and resolved engineering items between Amtrak and Pullman Engineering for coach, diner and sleeper cars and bi-level Superliner cars. Performed study for Amtrak to convert the Budd built El Capitan bi-level cars of the mid 1950s to be compatible with the new Superliner Bi-Level cars. This covered head end power, access between the cars, HVAC etc. For Pullman R&D, developed transit car proposals for various authorities. Also developed interior fitting for a full size mock up of the Amtrak Bi-Level car proposal
- Freight Car Engineering: Senior project engineer with Thrall Car Manufacturing. Led an engineering team to design and build aluminum automatic bottom discharge coal cars and rotary dump coal cars. Prototypes were built, tested and loaned to various customers for evaluation before going into production. Designed and built airbrake systems for a variety of freight cars. Coordinated parts fabrication with manufacturing, purchased components with outside vendors, installed and tested the system to AAR requirements.

W. Gregory Haycox

Source Inspection

Mr. Haycox is a transportation administrator with more than 15 years of extensive management experience in the mass transit industry directly supporting multi-million dollar programs for major transit authorities throughout North America. His responsibilities include management and supervision of inspection services, coordinating first article inspection activities, and standardizing quality-related work practices. As a program planner, Mr. Haycox has experience with production and project planning and control for design, build, and delivery of mass transit vehicles. As a mechanical designer, he has implemented rail vehicle and equipment design, installation, and systems testing. As a field service engineer, he has provided site planning, mobilization, coordination and reporting. Mr. Haycox has been a team leader for time-sensitive, high-value system start-ups employing critical path and precedence diagramming techniques.

Education

Associates of Science,
Architectural Design
Technology; Loyalist
College, Belleville, Ontario
Canada

Project Experience

SEPTA Preliminary Engineering Analysis of Silverliner V - Quality Manager

Providing quality management and overseeing the quality procedures in support of this analysis and recommendations for salient car features to be provided on the Silverliner V, the Southeastern Pennsylvania Transportation Authority's (SEPTA) new commuter rail coach.

Siemens Transportation Systems - Former Manager, Testing and Commissioning

Responsible for the daily management, planning, coordination, and administration of all vehicle production testing and field commissioning and testing activities. Mr. Haycox managed a staff comprising production/field engineers and technical personnel. He developed and managed annual budgets and staffing plans in support of corporate projects. He mobilized field sites in support of customer requirements. Mr. Haycox developed and monitored department metrics reporting in support of the continuous improvement process, and he supported administration of the warranty process in the field.

Bombardier Las Vegas Monorail System - Former SDC Director (TTS Division)

Directly responsible for the daily management, planning, coordination, and administration of all operations and maintenance activities for the Las Vegas Monorail System. Mr. Haycox managed a diverse staff of more than 80 personnel. He planned, developed, and controlled annual multi-million dollar budgets, and developed annual staffing and training programs directly aligned with overall project budgets. Mr. Haycox established strategic plans supporting initial 5-year O&M contract requirements. He initiated a "focus team" approach to successfully manage detailed elements of the program.

Mr. Haycox also assumed a Qualified Individual (QI) role working with city, county, and state officials.

Bombardier Transportation - Former Director, Customer Service-Propulsion and Controls

Responsible for day-to-day management and direction of the customer service group supporting testing, commissioning, and warranty support activities for the successful delivery of the company's propulsion equipment throughout North America. Mr. Haycox successfully supported commissioning and delivery activities for more than 2,800 rail cars for various North American transit agencies. He mobilized field site support facilities at major mass transit locations, and maintained scheduling and budget commitments. He developed, monitored, and maintained annual budgets for service locations. Mr. Haycox hired and trained field services personnel to fulfill customer contractual obligations for new transportation technology application startups.

Adtranz (Daimler Chrysler) - Former Director, Field Operations (Adtranz Service NA)

Provided overall personnel and budget management for all Adtranz field sites operating in North America. Mr. Haycox managed a field service support staff comprising more than 150 engineers and technicians, as well as a budget in excess of \$17 million per annum. He consistently met annual budget targets and commitments and administered testing, commissioning, and warranty support programs for the successful introduction of the company's equipment into service operation on time and within budget. Mr. Haycox managed the documentation and training department in the development of training programs supporting customer requirements. He also provided continuous follow-up assistance to customers following successful contract completion.

ABB Traction - Former Manager, Field Service

Responsible for daily management and direction of all customer field service support activities for the company's North American operations. Mr. Haycox successfully commissioned and delivered more than 300 transit vehicles for major transit authorities. He interfaced directly with transit customers to provide additional services, including technical training, as well as documentation programs and maintenance management programs. Mr. Haycox successfully met budget and delivery requirements during his time of tenure.

UTDC Corporation San Jose Streetcars - Former Applications Manager/Field Site Manager

Mobilized and managed field site activities for delivery of new streetcars to the city of San Jose, CA. Mr. Haycox supported technical and marketing activities for the company's U.S.-based transit customers. He successfully commissioned and delivered 50 streetcars on time and within budget. Mr. Haycox also provided training, manuals, and technical services in support of the product delivery process. In addition, he provided advisory support services for the company's product and equipment operations in the U.S.

DANIEL J. KELLEY

Lead Engineer

Years of Experience

16 (6 with PB; 10 with others)

Education

Associate in Applied Science, 1986, State University of New York Agricultural and Technical College, Alfred, NY

Key Qualifications

Supervision, Engineering, Quality Assurance, Inspection and Testing

Relevant Experience

- Siemens Rapid Transit Car Construction Oversight, Kanona, New York: Currently working as an on-site consultant/lead engineer for the Massachusetts Bay Transportation Authority (MBTA) on a new car contract for 94 rapid transit cars. Cars are being supplied by Siemens Corporation and are being assembled by Transportation and Transit Associates in Kanona, NY. Responsibilities include oversight of all phases of complete car construction including the car shell and all necessary components. Witnesses functional and final acceptance testing of all cars. Monitors and tracks all field modifications and engineering change orders. Performs First Article and Source inspections at vendor facilities. Submits daily, weekly and monthly progress reports for review by MBTA transit personnel. Interfaces with the primary contractor (Siemens) and all subcontractors on behalf of the MBTA.

Previous Experience

- Maryland Metro Transit Heavy Vehicle Overhaul Program, Baltimore, Maryland: Chief project engineer on the Maryland Transit Metro Heavy Vehicle Overhaul program. Responsible for supervision of engineering staff assigned to the program. Reviewed and approved all engineering changes to drawings and schematics for both in house and vendor assemblies. Generated field modification instructions. Worked directly with program management, purchasing, planning and production departments to resolve issues related to completion of the program. Assigned and oversaw engineering related duties. Worked directly with on-site service personnel to resolve engineering related issues in the field.

As supervisor of test engineering, was responsible for writing proof of design, production and qualification test procedures. Reviewed and approved vendor test procedures and reports for submittal to the customer. Conducted and oversaw all qualification testing including on-site vendor component testing and on-site car level qualification testing. Supervised staff conducting tests. Completed test reports and performed follow up as needed through the approval process. Worked directly with customer throughout the testing process.

- Hudson Bergen Light Rail Transit project and Newark City Subway Project, New Jersey Transit, Newark, New Jersey: Responsibilities included setup and management of on-site office. Created and maintained documentation of all inspections. Completed in-process and final inspections of 46 light rail transit cars. Witnessed functional and final acceptance testing of all cars. Monitored and tracked all field modifications and engineering change orders. Submitted daily, weekly and monthly progress reports for review by New Jersey Transit personnel. Interfaced with the primary contractor (Kinki Sharyo) and all subcontractors on behalf of New Jersey Transit.
- F 40 PH-2 Locomotive Overhaul, Peninsula Corridor Joint Powers Board (CalTrain): Worked as an independent consultant to PB under this contract. Responsibilities included the review for approval of test procedures, inspection, and testing of 20 F40 commuter locomotives. Also responsible for interfacing with the primary contractor (Alstom, AMF) and the final assembly contractor (Transportation and Transit Associates).

- GP40 MC-3 Locomotive Overhaul Project, Boston, Massachusetts: Responsible for inspection and conditional acceptance of the locomotives on-site for shipment to the MBTA in Boston. Responsibilities included inspection of all phases of locomotive construction, testing of locomotive (i.e., functional testing, load testing, propulsion testing, clearance/weight testing and final road tests); inspection of all FRA required modifications; and tracking and verifying all field modifications and engineering change orders. Also responsible for interfacing with the primary contractor (GEC Alstom/AMF) and the final assembly contractor (GATI, formerly Amerail) on behalf of the MBTA. Also represented MBTA for extended periods of time in Montreal at GEC Alstom/AMF and in Rensselaer at the Amtrak facility for field modifications and repairs.
- Pullman Car Overhaul, Boston, Massachusetts: Responsible for inspection of all phases of car construction. Inspections included structural car shell, water testing, electrical, car function testing and evaluation, paint and completed car. Also responsible for interfacing with the final assembly contractor (GATI, formerly Amerail) on behalf of the MBTA on this 57-car overhaul project. (American Passenger Rail Car Company:
 - Test Engineering: Reviewed and wrote test procedures, coordinated and witnessed proof of design testing; and wrote final test reports for submission to customers.
 - Lead Test Technician: In charge of the environmental (climate) chamber used to perform full scale environmental testing on transit car's HVAC systems. Responsible for room controls and operation, supervision of technicians, Instrumentation, testing and data acquisition. Aided in the design and construction of the climate chamber and all instrumentation. Performed HVAC testing on the SEPTA Norristown N-5 car, BART commuter car, Caltrans commuter and food service cars, Metro North M-6 transit car, Amtrak Viewliner sleeper coach and the MBTA Pullman coach. Also lead test technician of the hot room test chamber and supervised all testing conducted on the Metro North M-6 and M-2 transit cars.
 - Quality Control: Responsible for quality assurance in all aspects of the M-6 transit cars. (i.e., under car structural, welding, electrical wiring and conduit, interior, flooring and wall installations and verification of prints to actual car construction).
 - General Mechanic II: Responsible for door operations; setup, timing and final functions, electrical wiring of door operators and evaporators, and all phases of interior assembly on the New York City R-44 and R-46 subway car contracts.

Ralph Lozano

Rail Car Inspector

Mr. Lozano has 20 years of experience working on projects involving the procurement and inspection of commuter railcars. He is adept at performing interior, exterior, under-floor, and electrical inspections for new railcars. Mr. Lozano is also experienced in performing pneumatic leak, trucking and leveling, water, line, and final inspections. He has supervised and created schedules for the inspection teams, and has served as the liaison with customers.

Project Experience

Metra Procurement of 300 New Gallery-Type Bi-Level Commuter Railcars - Inspector

Performing interior, under-floor, and exterior inspections for the procurement of 300 new gallery-type bi-level commuter railcars. Mr. Lozano is also performing electrical test inspection of the railcars and is auditing in-process floor inspections at each station. This addition of 300 new gallery cars marks the largest procurement in Metra's history. The rail service plans to retire 258 vehicles from the 1950s and 1960s, creating a net gain of 42 vehicles once new vehicle procurement is complete. These additional vehicles will help Metra to update and improve their current gallery car fleet. The procurement will also ease the demand for increased service growth and forecasted line extensions. Metra is purchasing 108 cab cars and 192 trailer cars.

LIRR M-7 Car Procurement - Quality Assurance Representative

Reviewed contract requirements, specifications, and codes for the M-7 project at Bombardier LaPocatiere, Quebec, Canada, and Plattsburgh, NY. Mr. Lozano recommended practices and methods and reviewed drawings. He performed inspections including in-process interior, pneumatic leak test, under-car final inspections, trucking and leveling, water test, electric locker, and final inspections of the railcars. Mr. Lozano was involved in schedule performance and process improvement meetings with the manufacturer's management team.

Amtrak High-Speed Rail Contract - Quality Assurance Representative

Reviewed contract requirements, specifications, and codes for the Bombardier plant in Barre, VT. Mr. Lozano recommended practices and methods and reviewed drawings. He performed inspections of the railcars including in-process interior, pneumatic leak test, under-car final inspections, trucking and leveling, water test, electric locker, and final inspections. Mr. Lozano performed 480-volt functional testing and was involved in schedule performance and process improvement meetings with the manufacturer's management team.

Electric Transit Inc. Division of AAI Corporation - Former Quality Control Supervisor

Education

Diploma; Harrison Carter High School

Coursework; Industrial Management Institute

Training/Certifications

Certificate; Resistance Welding Clinic

Master Awards Certificate, Midwest Industrial Management Association; Industrial Management Institute

Certificate, Machinist Apprenticeship; Midwest Industrial Management Association

Worked with the production team to maintain a high product standard of railcars for this company in Dayton, OH. Mr. Lozano was responsible for quality plans, line inspectors, the daily inspection schedule, records, and documents. He was a member of the process improvement team.

Amtrak Metra Gallery Project - Quality Control Supervisor/Process Improvement Team Coordinator

Acted as a quality control supervisor and a process improvement team coordinator with an emphasis on reducing re-work and maintaining a quality product. Mr. Lozano supervised line inspections, the metallurgy lab, and technicians for the carshell program. He interacted with the engineering and manufacturing departments and supervised the first and second shifts. Mr. Lozano served as the liaison with the customers.

Amtrak View Liner - Quality Control Supervisor/Process Improvement Team Coordinator

Acted as a quality control supervisor and a process improvement team coordinator with an emphasis on reducing re-work and maintaining a quality product. Mr. Lozano supervised line inspections, the metallurgy lab, and technicians for the carshell program. He interacted with the engineering and manufacturing departments and supervised the first and second shifts. Mr. Lozano served as the liaison with the customers.

McDonnell Douglas Military Helicopter Transmissions - Quality Control Inspector/Process Auditor/Tool Calibration Technician

Conducted first piece and final product inspection for military helicopter transmissions. Mr. Lozano acted as the liaison between the company and the U.S. government, line inspector, inspection validator, and process auditor.

Boeing Military Helicopter Transmissions - Quality Control Inspector/Process Auditor/Tool Calibration Technician

Conducted first piece and final product inspection for military helicopter transmissions. Mr. Lozano acted as the liaison between the company and the U.S. government, line inspector, inspection validator, and process auditor.

Ian B. Pirie

Support Engineering

Mr. Pirie has more than 20 years of experience involving rail transportation electronics hardware and software. He has managed numerous studies and simulations, developed software applications, performed design reviews, tested systems on-site, monitored vehicle testing and inspections, developed vehicle specifications, conducted software and hardware safety analyses, and audited embedded software development processes. Mr. Pirie's unique background and expertise includes understanding the software development process as it relates to both mission and safety critical systems in the transportation industry, including Federal Railroad Administration (FRA) requirements.

Project Experience

MBTA Acquisition of Bi-Level Passenger Coaches - Computer Systems Engineer

Reviewing and revising requirements for software for the HVAC system for approximately 33 new passenger coaches procured by the Massachusetts Bay Transportation Authority (MBTA) for fleet expansion on the Greenbush Line. Mr. Pirie is performing first article inspections (FAIs), qualification testing, and commissioning.

MBTA F-40 Overhaul - Senior Vehicle Engineer

Reviewing the design of microprocessor-controlled train control systems, conducting software quality control audits and safety assessments, and performing First Article Inspections, qualification testing, and commissioning for the overhaul of the Massachusetts Bay Transportation Authority (MBTA) fleet of F-40 rail cars.

MBTA GP-40 Overhaul - Senior Engineer

Reviewed designs for microprocessor-controlled systems, including train control, brakes and propulsion systems for the overhaul of the Massachusetts Bay Transportation Authority (MBTA) fleet of GP-40 rail cars. Mr. Pirie also conducted software quality control audits and performed First Article Inspections, qualification testing, and commissioning.

LIRR C-3 Bi-Level Coaches - Project Engineer

Performed design reviews and testing for micro-processor-controlled systems, including communications, diagnostics, and event recorder systems. Mr. Pirie was the lead engineer in conducting the EMC (radiated, LVPS conducted) tests for this vehicle.

Metro-North M-8 EMU Passenger Vehicles - Vehicle Engineer

Developing the technical specification and reviewing the vendors' proposal for the design of the communication system and event recorder for the procurement of new EMU vehicle for Metro-North Railroad in New York.

Education

Electromagnetic
Compatibility in Railways;
University of York, United
Kingdom

Safety System Design;
International Society for
Measurement and Control
Automatic Train Control;
George Washington
University

Advanced Propulsion System
and Electromagnetic
Compatibility; George
Washington University

Certificate, Electronics and
Computer Technology;
National Technical Schools

Electronic Technology;
Western Montgomery County
Vocational School

Professional

Registration

FCC Operator License

NY. STV is preparing specifications for 342 newly procured EMU vehicles for use on Metro-North's New Haven line.

VRE Construction Inspection Services for Passenger Cars - Vehicle Engineer

Providing vehicle engineering services for the procurement of 10 locomotive-hauled gallery cars for Virginia Railway Express (VRE) in Alexandria, VA. Mr. Pirie is responsible for reviewing the design of the microprocessor control system including the communication system, automatic train control, event recorder, and low-voltage power supply systems. He is also performing first article inspections (FAIs) and qualification testing. Mr. Pirie is the lead engineer for the review of the system safety program to make sure that the vehicle meets the FRA and FTA system safety requirements. The scope includes maintaining project design and delivery schedule, providing VRE with a thorough technical review of the necessary documentation, preparing required reports and other documentation in a timely manner, and delivering the cab cars on schedule with minimal supplier or implementation issues.

Metra Oversight of 26 New EMU Railcars - Vehicle Engineer

Reviewing the design of microprocessor-controlled systems, including AC propulsion, micro-processor brakes, and communication systems for the procurement of 26 new Highliner electric multi-unit (EMU) vehicles. Mr. Pirie is also reviewing the electromagnetic compatibility program and the safety analysis as it applies to 49 CFR 238.105. Metra's objectives are to acquire additional commuter fleet capacity in the next three years and to make sure that these new commuter coaches incorporate the latest safety and vehicle systems technology, as well as the latest hardware/software interfaces.

Metra Gallery Car Procurement - Vehicle Engineer

Providing design reviews of microprocessor-controlled systems including train control, brakes, and communication systems for the addition of 300 new gallery cars to the Metra fleet, the largest procurement in Metra's history. Mr. Pirie is also conducting software quality control audits and safety assessments and performing first article inspections (FAIs), qualification testing, and commissioning.

NJ Transit Multi-level Push-Pull Commuter Railcar Procurement - Vehicle Engineer

Reviewing the design of microprocessor-controlled systems, including communication and central diagnostic systems, for the procurement of 200 locomotive-hauled bi-level passenger rail cars for NJ Transit's expanding fleet. Mr. Pirie is also performing First Article Inspections, qualification testing, and commissioning.

NJ Transit Comet V Commuter Coach, ALP-46 Electric Locomotive, and PL-42AC Diesel Locomotive Procurement - Senior Vehicle Engineer

Reviewing the design of microprocessor-controlled systems including train control, brakes, communication, and central diagnostic systems, as part of a

major procurement project for NJ Transit. Consisting of 265 Comet V single-level push-pull cars (including 65 for Metro-North), 29 ALP-46 electric locomotives and 33 PL-42AC diesel locomotives, the new equipment will be among the most advanced in the country. Mr. Pirie is conducting software quality control audits and safety assessments and performing First Article Inspections, qualification testing, and commissioning. These safety assessments made extensive use of analysis techniques such as failure modes and effect analysis (FMEA), failure modes and effect criticality analysis (FMECA), and fault tree analysis (FTA). Mr. Pirie also performed First Article Inspections, qualification testing, and commissioning. He also developed Metra's Train Hardware and Software Safety Program to meet the Federal Railroad Administration's 49 CFR 238.105 requirements.

LIRR/Metro-North M-7 Car Procurement Program - Project Engineer

Developing specifications and evaluating technical proposals for the procurement of 326 new M-7 electric multi-unit (EMU) rail vehicles. Mr. Pirie is primarily involved with the event recorder, central diagnostic systems, and communication systems, including GPS vehicle positioning and automated passenger announcement systems, as well as the specification for the development and management of the embedded microprocessor-controlled systems software. Mr. Pirie is also performing first article inspections (FAIs), qualification testing, and commissioning.

Metra New Diesel-Electric Locomotive Procurement - Vehicle Engineer

Reviewed the design of microprocessor-controlled systems, including train control, brakes, communication system for Metra's procurement of 26 new diesel-electric locomotives. Mr. Pirie conducted software quality control audits and safety assessments and performed first article inspections (FAIs), qualification testing, and commissioning. Mr. Pirie also developed Metra's Train Hardware and Software Safety Program to meet the FRA's 49 CFR 238.105 requirements.

LIRR DE-30/DM-30 Dual-Mode Locomotives - Senior Engineer

Performed design reviews of microprocessor-controlled systems, including train control, brakes, communication, and central diagnostic systems for this major procurement project to replace the diesel fleet of the Long Island Rail Road (LIRR), which had reached the end of its life expectancy. Mr. Pirie conducted software quality control audits and safety assessments. These safety assessments made extensive use of analysis techniques such as failure modes and effect analysis (FMEA), failure modes and effect critically analysis (FMECA), and fault tree analysis (FTA).

WILLARD L. SMITH

Quality Manager

Years of Experience

36 (23 with PB; 13 with others)

Education

B.S., Management, Missouri Western University, 1981

Professional Affiliations

American Society for Nondestructive Testing; American Society for Quality Control; American Welding Society
American Society for Quality (1982)/Design-Construction

Professional Registrations

Nationally Certified Level III-Nondestructive Testing

Key Qualifications

Will Smith offers transportation engineering, business and financial management, and quality assurance experience in the manufacture, procurement and construction of transit systems and equipment. Will has been responsible for transit vehicle financing transactions that have led to approximately \$1.5 billion in off-shore leasing arrangements for such agencies as the Metropolitan Transportation Authority (New York City Transit and Metro-North), Chicago Transit Authority (CTA), Port Authority of Allegheny County (PAT), Denver Regional Transit Authority (RTA), Massachusetts Bay Transportation Authority (MBTA), Metropolitan Transit Development Board (San Diego Trolley), Bi-State Development Agency (St. Louis MetroLink), and Southeastern Pennsylvania Transportation Authority (SEPTA). These transactions successfully passed regulatory audits by the governments of Denmark, Germany and the United States.

Transit/Rail

- MBTA Bi-Level High-Capacity Commuter Rail Coaches, Boston, Massachusetts: deputy project manager and quality assurance manager for the procurement of 75 bi-level cab control and trailer commuter coaches, built by Kawasaki Heavy Industries in Kobe, Japan and Kawasaki Rail Car in Yonkers, New York. PB was retained to provide engineering, inspection, and technical services during the procurement of these push/pull commuter coaches, each of which seats 185 passengers.
- Quality Assurance Manager for the procurement of MBTA 75 bi-level cab control and trailer commuter coaches, in which cars were built by Kawasaki Heavy Industries in Kobe, Japan and Kawasaki Rail Cars in Yonkers, New York.
- Quality Assurance Manager for the Massachusetts Bay Transportation Authority Pullman Coach Rehabilitation Program. He also participated in the fleet analysis that led to the engineers estimate.
- Project Manager for Metropolitan Atlanta Rapid Transit Authority's vehicle engineering on-call services project. Services included ADA, rehabilitation engineering and special engineering assignments.
- Senior QA inspector for New York City Transit Authority's R62, R62A, and R68 vehicle procurement projects. Will was responsible for conducting quality assurance audits, first-article inspections, and production source inspections for all equipment or subsystems deemed critical for safety or for maintaining revenue service.
- Site Manager for the rehabilitation of No 1 Southshore Subway Cars, Boston, Massachusetts - 75 aluminum cars originally manufactured by Pullman.

- Responsible for manufacturing and structural repair procedures for NYCTA's R32, R38, and R40 car rehabilitation program. Will prepared structural modification procedures for the truck frame, bolster and spring plank, to adapt different configurations of castings to the latest design.
- Was a member of the three person quality team that led the overhaul of the New Orleans Charles streetcar.
- Was the Quality Manager for the overhaul of 12 Bombardier bilevel coaches for the Ft. Worth Transportation Authority's Trinity Railway Express. This overhaul was performed by Amtrak at their Beechgrove, Indiana facility.
- Was field inspector on the PATH PA-1,2,3 fleet overhaul. His responsibility was to conduct Audits, First Article and Preshipment Inspections.
- Lead engineer for the ADA upgrades to 1950s vintage Long Island Railroad passenger cars being converted to excursion equipment at Georgia's Stone Mountain Park. This effort required carbody structural modifications.
- Provided Safety and APM driver training oversight on the JFK Airtrain for the Port Authority of New York and New Jersey.
- AirTrain JFK, New York City: testing and commissioning safety engineer during startup. Responsibilities included training light rail vehicle drivers, oversight of operations and SCADA testing, testing of multiple operating scenarios on the guideway and at 10 stations. He provided daily liaison between the Port Authority of New York & New Jersey and Bombardier Total Transit Systems operations, safety, vehicle maintenance and maintenance-of-way for an 8.1-mile (13-kilometer), 10-station light rail line linking New York's mass transit system and the LIRR with JFK International Airport terminals, car rental agencies, and employee/long-term parking lot. The \$1.9 billion system, which opened on December 17, 2003, is a key element in a multi-year, multibillion-dollar program designed to upgrade New York's primary airport. AirTrain routes are as follows: a 1.8-mile (2.9-kilometer) loop linking the nine airline terminals in JFK's CTA; a 3.3-mile (5.3-kilometer) extension to Howard Beach subway station; and a 3-mile (4.8-kilometer) extension to Jamaica Station.
- Salt Lake City Transit Express (TRAX), Utah: manager of systems integration responsible for all systems integration of all systems elements (traction power, signaling, catenary, special trackwork, fare collection, Americans with Disabilities Act (ADA), pedestrian access, and grade crossing protection) during construction.
- Will was also responsible for overall systems testing during transit system start-up. Additionally, Will was responsible for emergency response training for local police, fire, and emergency agencies, as well as FBI vehicle familiarization for the Salt Lake Olympic Game security. Additional responsibilities included:
 - Vehicle operator training for UTA. Conducted operator/driver training for the light rail vehicle supervisors. This included a requisite 8 hours of actual right-of-way non-revenue service operating time.
 - Overall systems safety certification compliance documents for traction power/catenary, light rail vehicles, signals (micro-processor based/freight railroad compliant), grade crossing and ADA compliance. This safety certification was accepted by the FTA.
 - Installation, inspection and testing of ticket vending machines for 16 stations prior to grand opening revenue service for the UTA North/South alignment.
 - Commissioning, testing and acceptance of 23 Siemens light rail vehicles (SLC I) and vehicle safety certification.
 - Project manager for specification development for the procurement of up to 10 Siemens SD-160 light rail vehicles. These LRVs are equipped with AC propulsion and a high floor stepwell configuration.
- Trinity Railway Express, Fort Worth Transportation Authority, Texas: responsible for systems startup activity for bi-level commuter coach and EMD F59PH locomotive revenue service.

- MBTA Track Clearing Testing Program, Boston, Massachusetts: served as assistant program manager for the track clearance testing program concerning the feasibility of the Authority's purchase of bi-level commuter cars.
- Rehabilitation of No. 1 Southshore Subway Cars, Boston, Massachusetts: site manager for the MBTA's rehabilitation of 74 aluminum No. 1 subway cars, originally manufactured by Pullman.
- R68A Vehicle Procurement, NYCT, New York City: quality assurance manager for the procurement of 200 subway cars using Nippon Sharyo cast truck frames.
- R32, R38, R40 Vehicle Rehabilitation, NYCT, New York City: responsible for manufacturing and vehicle structural repair procedures for NYCT's car rehabilitation program. He prepared structural modification procedures for the truck frame, bolster, and spring plank to adapt different configurations of castings to the latest design. Will also was responsible for the associated project cost impact estimates for cars that had been damaged by fire or collision. The cost estimates arose due to the concealed damage provisions of the project. The cost estimates were based on a number of individual subway cars on an individual basis. Each car required an individual analysis of damage, the actual increase (or decrease) of labor hours, material costs, and schedule impact.
- Procurement of R46 Truck Assemblies, NYCT, New York City: deputy project manager on the procurement of 1,500 R46 truck assemblies. Will's responsibilities included all site production, modification, and repair management as well as customer liaison. His additional responsibilities included negotiation of production facility leases, establishment of transportation schedules for the movement of truck assemblies and supplies, and contract compliance oversight.
- On-Site Inspection of R46 Replacement Truck Frames for NYCT, Columbus, Ohio: site supervisor with the PB joint venture for inspection and manufacturing of these Buckeye steel frames. He was responsible for metallurgical and foundry engineering tests, including sand analysis, physical and mechanical sample tests, evaluation of welding procedures, heat treatment monitoring, and press application criteria.

Cost Estimating

- MBTA Pullman Commuter Car Rehabilitation, Boston, Massachusetts: responsible for the overall engineer's estimate for the rehabilitation of Pullman commuter cars. This work required comparative cost analysis, including new versus rebuilt component replacement, structural modification cost, and interior configuration options cost. All variables are being categorized by burdened labor rate, time and materials, allowable taxes, and ancillary costs versus project budget.

Previous Experience

Will has held various positions as metallurgist and foundry engineer for railroad and transit trucks, as well as the position of chief radiographer of Rockwell International's Automotive Group, where he participated in the manufacture of truck frame assemblies for transit cars supplied to several major transit systems, including BART, MARTA, NYCT, and Washington Metropolitan Area Transit Authority (WMATA). He was responsible for cost estimates on all changes to manufacturing processes, including time-study labor allocations, material costs (including furnace and welding materials), core and mode usages, engineering redesign, and schedule impact. Will also served as facilitator for the Rockwell International Quality Circle Program.

Wojciech R. Szela

Test Engineer - Boston

Mr. Szela is a vehicle specialist and test engineer with proven experience in rail procurement and operations, with an emphasis on QA inspections and testing. He is skilled at conducting field tests for acceptance of equipment, as well as verifying performance and test data for compliance with contract and technical specifications. In addition, Mr. Szela is adept at conducting trainline compatibility tests between train sets, as well as supporting mainline and yard tests and reviewing and analyzing test procedures.

Project Experience

NJ Transit Comet V Commuter Coach Procurement - Test Engineer

Performed field testing on Comet V and Comet II low-voltage power supplies (LVPS). Mr. Szela developed a simulation of the LVPS performance using MATLAB with Simulink. This project is part of NJ Transit's major commuter rail vehicle fleet renewal and expansion program. Consisting of 265 Comet V single-level push-pull cars (including 65 for Metro-North), 29 ALP-46 electric locomotives and 33 PL-42AC diesel locomotives, the new equipment will be among the most advanced in the country. With an innovative digital control network in place of the conventional 27-pin inter-car jumpers, the new fleet will be in the forefront of commuter rail technology.

Maryland MTA MARC Locomotive Procurements - Test Engineer

Verified performance and test data for compliance with contract and technical specifications.

ConnDOT Pre-Procurement Inspection of VRE Vehicles - Inspector

Performed field inspections on 33 Mafersa cab/coach cars for visual wear and tear of the interior and exterior components for ConnDOT in Newington, CT. Major components under inspection include HVAC systems, seats, windows, flooring, lights, recent repairs, doors, trucks, bathrooms, wheel chair lifts, cab controls, and exterior and interior finish. The client then used these inspections for price negotiations with VRE. Mr. Szela performed trainline compatibility tests between VRE and ConnDOT cars in Virginia and Washington, D.C.

VRE Construction Inspection Services for Passenger Cars - Vehicle Specialist

Providing vehicle engineering for construction inspection and technical review for the delivery of 11 cab cars in Alexandria, VA. Mr. Szela is providing client project management support through review of drawings and technical documents. The project scope includes maintaining project design and delivery schedules, providing VRE with a thorough technical review of the necessary documentation, preparing required reports and other

Education

Master of Science, Electrical Engineering; Villanova University

Bachelor of Science, Electrical Engineering; Villanova University

Training/Certifications

System Engineering for Passenger Railways; Widener University

Railway Systems Design for Operations Seminar

documentation in a timely manner, and delivering the cab cars on schedule with minimal supplier or implementation issues.

NJ Transit ALP 46 Loco Engineering Assistance Task Order 30 - Test Engineer

Performed field testing and power quality analysis on ALP-46 locomotive HEP supply to determine the cause nuisance failure of LVPS on Comet II and Comet V cars. This task order (#30) provided ongoing assistance to NJ Transit during the resolution of miscellaneous issues aimed at enhancing ALP-46 performance and reliability. The scope of work included the implementation of a remote diagnostic system that upgraded the present train-to-wayside communications used by NJ Transit for remote troubleshooting and maintenance information.

MTA Overhaul of MHRT Maintenance Facility - Test Engineer

Supporting mainline and yard tests, providing engineering support to the project engineer, and reviewing and analyzing test procedures and test results on a proposed new railcar control system at the Metro Heavy Rail Transit (MHRT) facility in Baltimore, MD. Mr. Szela assisted the effort to replace an existing Westinghouse system with a new Alstom system, which has a logic box that uses state-of-the-art microprocessors. He was responsible for maintaining the project's compliance with all the specification's requirements. As part of his responsibilities, he generates comprehensive signal charts for propulsion and ATO systems.

Amtrak Northeast Corridor Maintenance Service Company (NECMSC) - Former Electrical Engineer

Applied his knowledge of electrical, electronic, and hydraulic systems to test, diagnose, and repair Amtrak's new Acela high speed trainsets. Mr Szela also developed maintenance procedures, designs, and engineering specifications.

Brenda M. Trembath

Vehicle Engineer

Ms. Trembath is a vehicle engineer with experience in transportation engineering and transit operations, including run-time analysis, cost estimation, scheduling, vehicle characteristics, and transit operations. She has applied her knowledge to many transit projects in North America and Europe.

Project Experience

MBTA Bi-Level Commuter Rail Coach Specification - Vehicle Engineer

Providing assistance with the development of a technical specification for new bi-level commuter rail coaches in Boston, MA.

MBTA Diesel-Electric Locomotive Specification - Vehicle Engineer

Providing specification development support for the procurement of 38 diesel-electric locomotives in Boston, MA. Ms. Trembath is responsible for reviewing the specification for correct references to standards and federal regulations and for correct cross-references within the specification.

MBTA CRASP Program - Vehicle Engineer

Providing engineering support for the MBTA Commuter Rail's Coach Reliability and Safety Program (CRASP) in Boston, MA. This program includes the upgrade of critical rail car components to extend the longevity of the car. Ms. Trembath was responsible for tracking action items and creating meeting minutes.

MBTA Commuter Rail Fleet Plan - Transportation Specialist

Providing operations planning support to identify short- and long-term needs of the MBTA commuter rail fleet in Boston, MA. Ms. Trembath is responsible for determining necessary types and quantities of vehicles to be obtained in future vehicle procurements, assuming future ridership demands as specified in a previous study. She is also working with the MBTA's mechanical and planning departments as well as with MBTA's contracted operator, the Massachusetts Bay Commuter Rail (MBCR), to identify the specific requirements of each rail line, the make-up of the current fleet, future goals of the system and operational requirements.

Southwestern Pennsylvania Commission (SPC) Eastern Corridor Transit Study Transitional Analysis to Locally Preferred Alternatives - Deputy Project Manager

Reviewed and updated recommended alternatives from the previous Eastern Corridor Transit Study to determine Locally Preferred Alternatives through a public outreach process. The Locally Preferred Alternatives was recommended for earliest advancement toward design, construction, and operation. Ms. Trembath was responsible for the evaluation of alternatives, coordination of public outreach meetings, presentations at public outreach

Education

Bachelor of Science,
Mechanical Engineering;
University of Pennsylvania

Memberships

Women's Transportation
Seminar (WTS)

meetings, preparation of materials for the study website, and coordination with study's steering group and stakeholders.

NICTD West Lake Corridor New Start Studies - Transportation

Planner

Assisted in the development of transit alternatives for an extension of the Northern Indiana Commuter Transportation District to central Lake and Porter Counties in Indiana, including Lowell and Valparaiso. Ms. Trembath contributed to a review of existing transit services, demographic conditions and trends, land use, transportation infrastructure, and travel patterns in Northwest Indiana, as well as the development of express bus and commuter rail alternatives that fit the transportation needs of the corridor. She researched existing transit services and organized how to coordinate them with the new services. Ms. Trembath assisted in evaluating alternatives to determine routing, service frequency, travel time, stop locations, infrastructure improvements, and related costs of implementation and operation.

Southwestern Pennsylvania Commission (SPC) Regional Job Access and Reverse Commute (JARC) Program Assessment - Task Leader

Participated in review of federal JARC legislation and Southwestern Pennsylvania's JARC program to determine the level at which the SPC's program is meeting the federal intent and performing relative to peer programs. Ms. Trembath assisted in formulation of recommendations for funding, program structure, standardized project implementation procedures, service improvements, marketing, and education.

DRPA Southern New Jersey to Philadelphia Transit Study - Lead

Technical Analyst

Assisted in the development of transit investment alternatives to improve PATCO service to Southern New Jersey, the Philadelphia and Camden Waterfront areas, and Center City, Philadelphia. Ms. Trembath was responsible for estimation of run times, operations and maintenance costs, and capital costs for the proposed improvements. She also developed GIS mapping of the proposed alternatives and participated in an extensive public outreach effort.

ALAN G. WEDDELL

Senior Technical Specialist

Years of Experience

28 (14 with PB; 14 with others)

Education

Certificate in Welding Engineering, Newcastle College of Technology, Newcastle Upon Tyne, England, 1982

Additional Studies: Quality Auditing Seminar, American Society of Quality Control; High Strength Bolts for Bridges (Federal Highway Administration); Radiograph Interpretation (Hellier, ASNT)

Professional Affiliations

American Welding Society (AWS); National Association of Corrosion Engineers (NACE)

Professional Registrations

Certified Welding Inspector (CWI) - American Welding Society (AWS), 1991

Certified ACCP Level II VT Inspector -American Society for NDT (ASNT), 2003

Certified Coatings Inspector (CCI) - National Association of Corrosion Engineers (NACE), 1995

Certified Quality Auditor - American Society for Quality (ASQ) 2004

Relevant Experience

- Stainless Steel Pipe Welder. Worked on many Petrochemical Plants, Nuclear & Coal Fired Power Plant projects UK, Australia, North Africa, USA. Proficient in GMAW, GTAW, SMAW, Resistance Welding & FCAW of Stainless Steel Chrome/Molly, Low carbon steel. All welding subject to 100% radiography.
- Welding Fabrication Supervisor – Supervised and trained 6 welders during the fabrication of stainless steel radio frequency shielded doors, ductwork and piping for Cape Canaveral Launch Complex 40 for the Launch of the Titan Mars Observer. Welding of 304L & 316L stainless steel with the GMAW & GTAW welding processes. Performed Liquid Dye Penetrant Testing (PT) on Stainless Steel seal welds on light gage Stainless Steel ductwork.
- Technical Specialist- Providing Quality Assurance Inspection Services for the New York City Transit Authority during structural steel fabrication for major re-hab projects in New York City. Performing audits of fabricators, and holding meetings with fabricator QC Managers to review findings. Performing inspections of welding and fabrication at Fabrication plants to ensure fabrication and welding and coating is being performed in accordance with specifications and approved procedures. Witnessing of Non-Destructive Testing of welds and review of NDT Testing Reports. Witnessing of Welding Procedure Qualification and Welder Qualification

This position required scheduling of fabrication visits and extensive traveling to support fabrication schedules and shipping dates. Position also required good computer skills with all requests for inspections and drawings being provided electronically. Provided client with detailed final inspection and sign off of structural steel welding/fabrication/coating. reports and digital photographs on a daily basis to keep client current with any issues and progress of fabrication.

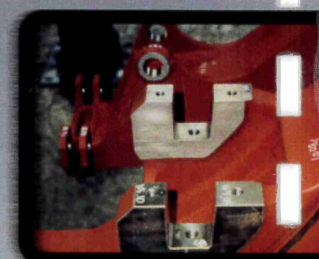
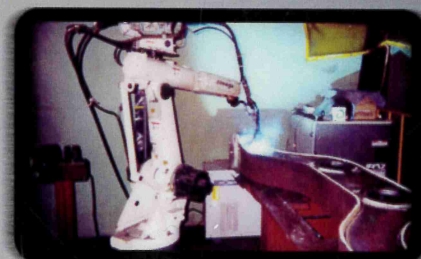
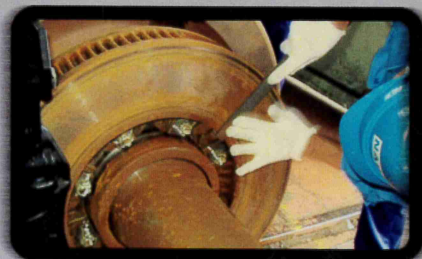
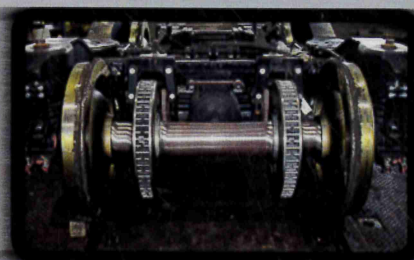
- Bus Frame Fabrication Inspection- Performed Audits and Inspections at the request of the Chicago Transit Authority during the jig set and welding of stainless steel bus frame structures. Reviewed actions taken by New Flyer bus fabricator to help reduce weld cracking on 304stainless steel. Inspected completed welds and performed in-process inspections to ensure weld cracking and quality issues had been resolved satisfactorily. Provided detailed reports and photographs for the client electronically to expedite update of progress.

PB Corporate Training Course Manager

Formulated two PB training courses for Welding Inspection & Coatings Inspection. Traveled to several PB job sites in the USA and Puerto Rico to give on the job training.

Awards

- Employee Performance Recognition: developed a plan of action for a problem that occurred on a bridge fracture critical steel issue.
- Employee Performance Recognition: a recommendation on a structural steel coating issue that could save the project an estimated \$3 million.



STV/PB - a joint venture
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